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ABSTRACT

The development of universities in the Asian and the Pacific region to the year 2000 is discussed, with attention to probable evolution of the goals and functions of higher learning. After considering higher education within the context of the cultural and educational background of the region, innovative trends in higher education are analyzed. Trends for the coming decades, and the issues of democratization and the social responsibilities of higher education, are also addressed. Factors that influence the development of education in Asia include population trends, per capita income, and the rate of illiteracy. Data are provided on the annual average increase in enrollment during 1965-1970 and 1970-1980 in Asia, Africa, America, Europe, and Oceania; enrollment projections by sex for 1985-2000 for nine regions in Asia; enrollments by field of study for nine countries; and student teacher ratios for Asia and Oceania for 1965-1980. The experiences of various Asian countries are discussed, with attention to the following topics: educational goals, structure and organization, curricular reform, faculty improvement, evaluation methods, distance learning, adult education, work experience programs, and research and development. The future role of universities, equality of opportunity, and educational reform are also considered. (SW)

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HIGHER EDUCATION IN ASIA AND THE PACIFIC:

A Perspective Study

S. C. Goel

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Note from the Secretariat

The present study has been prepared within the framework of the Unesco programme aimed at deepening knowledge of the role of higher education in society. Within that framework, certain activities, like this study, have an exploratory function; they are devoted to the study of some major problems, and seek to promote reflexion with a view to clarifying the goals and future role of higher education, (based on the results of previous activities).

The Secretariat has undertaken a series of prospective studies concerning the development of education from the present to the year 2000. Within this framework, five regional studies are devoted to the evolution of higher education in a perspective of democratization and social progress.

The present study is one of the five, and deals with the perspectives of development of the universities in the Asian and the Pacific region from now to the year 2000. In the light of recently observed trends, the author reflects on the probable evolution of the goals and functions of higher learning--especially universities--during the last years in the region.

Starting with a general consideration of higher education within the cultural and educational background of the region, the author devotes an important part of his analysis to the innovative trends in higher education on the basis of concrete country experiences, and for which a wide and rich empirical information is made available to the reader. From the previous analysis, the study launches into a consideration of emerging trends for the coming decades in which the issues of democratization and the social responsibilities of higher education, find their appropriate relevance.

Dr. S. C. Goal is a specialist of higher education and is currently Joint Secretary of the University Grants Commission in New Delhi.

The present text reflects the results of his studies and research in the field of education in general and higher education in particular.

PREFACE

A happy combination of circumstances enabled me to undertake the present study on the development perspective of higher education in the Asia and Pacific region. The study covers the educational and cultural background of the region, recent trends, diversified patterns and the goals and functions of universities projected from now to the year 2000 A.D. It would be pretentious on my part to claim that I was able to develop insights into the national education systems of so many countries with diverse backgrounds; at best this was a voyage and a source of learning to me.

I am grateful to the Higher Education Division of Unesco, the New Delhi-based embassies of USSR, China, Nepal, Iran, Turkey and Japan, the High Commissions for Pakistan and Sri Lanka, and the National University of Singapore for supplying useful material relevant to this study. Dr. Madhuri R. Shah, Chairman, University Grants Commission, New Delhi has been a 'philosopher and guide' to me as also a source of inspiration. My friends and colleagues were specially responsive particularly Professor V. Shanmugsundaram, Professor of Economics, Madras University, Professor G. B. Shah, Professor of Education, South Gujarat University, Professor Bakhshish Singh, Director, Directorate of Correspondence Courses, Punjabi University, Patiala, Professor Ramlal Parikh, Gujarat Vidyapith, Ahmedabad and Dr. S. P. Gupta, Deputy Secretary, University Grants Commission. I also express my gratitude to the librarians of the University Grants Commission, Association of Indian Universities and the Unesco Regional Office in New Delhi, who gave me access to their materials. I look forward to a wider circulation of the results of this study, possible criticism and further enquiry.

New Delhi
June 1983

CHAPTER I

The Cultural and Educational Background

This study on the perspective of higher education in the Asia and Pacific region brings within its purview a number of countries; big, medium and small. These countries are similar in many essential manifestations but also show wide ethnic and linguistic diversity. In spite of some sporadic attempts made in the past, the problems of the educational development of the region at the level of tertiary education are only beginning to be studied in an integrated, systematic and comprehensive manner. The present study, therefore, assumes special significance in the context of a perspective plan from a long-term point of view. The need for highlighting the problems of higher education in the region is all the greater because it is felt that the experience of any one country is directly relevant to all the others in the region. This is so not only because of geographical proximity and easy access but because the problems they have to face are often similar in nature. The similarities and dissimilarities of their educational goals, experiences and plans for development makes it an interesting and exciting study but the task is as difficult as it is variegated and complex.

Asia is the largest of the continents occupying 20.3 per cent of the world's land area; within the continent Oceania has 6.3 per cent and USSR 16.5 per cent (United Nations 1979-1980). The region is also the most diverse of all the regions in the world. Some countries like India and China are large in area as well as the size of their population. On the other hand, countries like Australia and Mongolia occupy large areas but are thinly populated or underpopulated. There are some countries like Bangladesh and Japan which have small areas but large populations. On the other hand, Singapore is small in area as well as its population size. There are very small countries also like the island states of the Pacific with highly dispersed populations and long distances.

The Asia and Pacific Region is inhabited by most physical varieties of human races viz. Mongoloids, Caucasoids, Australoids, Negritos and mixtures of all these. Basically, all Central Asians are Mongoloid and West and South-West Asians Caucasoid. East Asians are variations of the Mongoloid while most South-East Asian people are either Australoid or Mongoloid. Generally speaking, there are Indo-Aryans in the North and West, Negroids in the South, Mongoloids in the East and Malayans in the Far-East.

The region also shows extraordinarily rich diversity in regard to social structures and forms of economic organization. Some countries are highly industrialized; a few others urban in character but most are predominantly rural and agrarian. There are also wide differences in their political and administrative set-ups. In fact, all political philosophies and beliefs are prevalent in countries of the region in one form or another.

Asia has a recorded history that stretches in time to more than five thousand years. It has been a cradle of many ancient civilizations which grew around Indus, and Hoang-Ho, which is also called the Yellow river. The ancient civilizations of China and India rank the same in age. The civilizations in Indo-China, Korea, Indonesia and Japan are relatively younger.

Asia contributed immensely to the growth of knowledge in ancient as well as medieval times. Asia invented writing; in fact, the Chinese characters had attained

the highest perfection in the second millenium B.C. It is the Phonecian script as it appears on the sarcophagus of Ahiram which gave birth to the Greek alphabet ... Herbert (1965). Aryabhatta I (b.476) in India developed and used algebra independently. His work mainly deals with astronomy and spherical trigonometry. The most important contribution made by him is the treatment of indeterminate equations, approximation of pi and the introduction of versed sine function. His work was followed by Brahmagupta (588 - c 666) and Bhaskara in the 12th century. The Chinese also did early work in this field.

While there has never been any great emphasis on medical education as part of the formal curricula, certain indigenous systems of medicine were developed in the region. There were three important systems; Ayurveda, Unani and Siddha. These systems are still widely practised in rural and tribal areas which are outside the reach of modern medicine. The practitioners of these systems in the past are known to have developed great expertise in diagnosis, therapy and even surgery.

Asia has also been the birth-place of all the great world religions. Hinduism with its emphasis on divine immanence dates from 1500 B.C. but has, by and large, remained confined to its birth-place in the Indian sub-continent. Zoroastrianism flourished in Persia in about 600 B.C, but the followers migrated to India and other regions a long time ago and have practised their religion there. In China, Confucius and Lao-Tzu founded their religions based on the service of humanity. Buddhism (founded by Gautama Buddha) had a much greater impact outside its birth-place in India and is prevalent in China, Japan, Korea, Sri Lanka and the South-East Asian countries. Jainism based on non-violence was founded by Mahavira and is practised in India. Jesus Christ was born in Bethlehem but initially Christianity moved Westward. At present, many Asian countries have Christian minorities while some countries in the region like Australia, New Zealand and Philippines practise Christianity. Islam spread to Afghanistan, Iran, Pakistan, India, Bangladesh, Malaysia and Indonesia.

It is not without significance that religion which at one time dominated the system of education continues to exercise some influence over it even today and more particularly in the rural areas. Taxila[1] in Pakistan, Naland[2] and Vikramshila in India, monastries for the training of Buddhist novices in South-East Asia, temples in Madurai and Varanasi in India, the well-known cultural-literary enclaves in Shiraz, Bukhara and Samarkand, the Vidyodaya Pirivena and the Vidyalankara Pirivena in Sri Lanka, the private Confucian academies in China and the private temple schools in Japan were all focal points of traditional religious education. The influence of religion over education and culture led to many important features in the growth of educational institutions in the region. First, education was imparted by religious functionaries and the structure of education was laid down somewhat rigidly with little or no scope for deviating from the chartered path. Even today, students in many countries of the region are not willing to argue or to criticize or to look upon education as a participatory experience. Second, there was special emphasis on the study of religious texts, ancient classics and scripts, oral transmission of knowledge, rote memorization, rituals, metaphysics and ethical values. Third, education in most places tended to be esoteric in nature and in a few places confined to certain privileged classes like the Brahmins in India. In Islamic education, learning was for a privileged few attending the halqat or 'learning circles' of mosque schools. The available preparatory training was invariably private-tutorial in character or offered only under local religious auspices (Locas 1981). In ancient China, the education system was for the nobles and exclusively for them; their education included music, arithmetic, literature and training in etiquette and ceremonial (Education 1981). In Japan, the private schools were funded by

powerful noble families. Some of these schools achieved recognition as institutions of higher learning. It may also be mentioned that the admission tests at the great University of Nalanda used to be highly rigorous. Fourth, it is important to mention that traditional religious education included the acquisition of knowledge as well as skills. For example, in the Hindu tradition of education were included studies of classical texts, grammar, metaphysics, astronomy, mathematics, physics, medicine, military science, arts and crafts. The Buddhist monastic institutions, while emphasizing Buddhism, Buddhist civilization and related languages also included indigenous medicine and astrology. Similarly, in some of the private higher schools for Islamic education, technical instruction was given as a supplement to the prevailing apprenticeship system for the trades and professions. Lastly, education under the auspices of religions institutions tended to be highly individualistic and there was also a general neglect of women's education, specially in Islamic, Confucian and Buddhist beliefs.

This region also shows great diversity of languages which has an important bearing on the development of education. It embraces most major non-African language families: Indo-European, Uralic, Altak, Sino-Tibetan, Austro-Asiatic, Dravidian, Tai-Kadai and Malayo-Polynesian. There is also a wide variety of languages spoken in some countries viz. India and USSR. In India, the problem of medium of instruction at the level of higher education has so far defied an easy and acceptable solution and created innumerable problems regarding student and teacher mobility, the building up of library resources, communication, marking of scripts, uniformity of standards and so on. The problem also haunts Sri Lanka where in addition to English, Sinhala and Tamil have been declared as media of instruction.

Another important characteristic of the growth of education in the region has been its feudal and colonial legacy. The colonies were under the British, Americans, Spaniards, French, Dutch and Portuguese who brought with them many imprints of medieval European universities including the liberal tradition of education. Philippines, which was under American rule for a brief period, is an exception. There is also the influence of European languages. Russian, English and French are the dominant languages with a sprinkling of German, Spanish, Dutch and Portuguese in particular regions. French has almost become a link language for the educated classes in Viet Nam, Cambodia (now Kampuchea) and Laos, Dutch in Indonesia and English in India, Malaysia and Sri Lanka. This has helped these countries to keep their windows and doors open but the differences in cultural backgrounds represented by the foreign and native languages have also brought about a slow and gradual alienation of the educated people from the mainstream of their social life. As Jawaharlal Nehru said: Higher education on the British model created 'a new caste or class in India, the English educated class which lived in a world of its own, cut off, from the masses of the population...' (Nehru 1946).

The most important development in recent times has been that many countries of the region gained independence following the Second World War. Philippines became independent in 1946, India and Pakistan in 1947, Sri Lanka (then Ceylon) and Burma in 1948, Indonesia in 1949, Kampuchea (then Cambodia) in 1954 and Malaya in 1957 with Borneo being added in 1963 to form the Federation of Malaysia. With their accession to independence, these countries are now trying to regain their pristine glory as well as to develop their systems of education at all levels and to raise levels of productivity and living so as to enjoy leisure and the fruits of modern science and technology. There are several obstacles and constraints in the process of development and transformation of society. In the context of the legacy of the colonial era and the long period of stagnation which coincided with it, Gunnar Myrdal (1968) points out how attitudes antagonistic to development have taken firm root and become institutionalized in countries of the region. He talks of the dead-hand of the past in regard to several constraints which affected the new nations as they emerged from colonial rule. Some of these are summarized below: (i) large sections of population in these countries suffered from ignorance, in which one element was a low rate of literacy and even lower rate of functional literacy; (ii) the training of teachers was neglected, particularly at the primary level

and usually at the secondary level; (iii) the methods of teaching in the pre-colonial era were all heavily weighted in the direction of making the pupils memorize texts; (iv) teaching tended to be dogmatic and authoritarian; it did little to encourage critical attitude or an interest in self-education, it discouraged independent thinking and the growth of the inquisitive and experimental bent of mind that is so essential for development; (v) the university student became aggresively conscious that he belonged or would belong to an elite group; (vi) a degree became the object of pursuit, rather than the knowledge and skills to which the degree should testify; (vii) they developed a contempt for manual work and most of the educated persons regarded their education as the badge that would relieve them of any obligation to soil their hands. Even when schools of engineering and other technology institutes were established, students commonly expected--and were expected--to become deskmen.

The setting in the Asia and Pacific region has undergone a sea-change in recent years in the wake of social and economic development but essentially the situation in most countries of the region is characterized by a sluggish rate of growth and low output per unit of labour. Most of these countries, especially those in Southern Asia, belong to the category of the Third World with a large number of their people below the poverty line and suffering from the pangs of deprivation. Partly due to the legacy of the past and partly because of exploitation by the developed countries in the form of tariff and non-tariff barriers and other forms of protectionism, the efforts of these countries to improve the living standards of their people have remained a pipe dream. They still have to depend on imported technology and the supply of manufactured goods from abroad while their essential raw materials are exported often on unfavourable terms of trade. The debt burden has mounted year after year in a number of countries and the position of balance of payments continues to be precarious. Although the Asian region has registered average annual real economic growth of about five per cent during the past 20 years, which is much higher than the three per cent for Latin America and one per cent for Africa, there are vast variations between one country and another. (The Times of India 1983). In reality, all the symptoms of underveloprnent viz. poverty, inequality, ill-health, malnutrition, unemployment, etc. manifest themselves in the contemporary situation in vast areas of the region.

The economies of most countries of the region are predominantly agricultural with a large segment of the population living in rural areas and depending on agriculture for its sustenance. In spite of the agrarian structure of the economies in the region, there is a shortage of raw materials and farm produce in general. Many countries have not been able to achieve their goal of self-sufficiency in foodgrains. Their farm economies have not been diversified in a way that would stimulate labour-intensive activities and absorb rural youth in gainful occupations. No development strategy will succeed in these countries unless emphasis is placed on agriculture and efforts are made to develop rural institutions, make provision for rural credit, create increasing job opportunities through programmes of education with a practical and rural orientation and encourage the flow of information to the farmer. A major task to be undertaken by the developing countries of the region is to fight the growing spectre of unemployment, to make education functional and relevant and impart practical skills to the work-force to make educated youth employable and self-reliant.

Most countries in the region started with a poor industrial base but are now on the road to industrialization. A number of Asian countries viz. Japan, Singapore and the Korean Republic have made rapid strides in the industrial field; some like Thailand, Malaysia, Indonesia and the Philippines are ready for take off; while others like India and China have great scientific and technical potential. In almost every country, there is a growing realization that urgent and pressing needs faced by their people cannot be met without evolving a suitable industrial policy, the development of appropriate technology suited to small scale and agro-industries

Another striking change taking place in the countries of the region is the drift of population from rural to urban areas. United Nations projections show that the urban population constituted 25 per cent of the total population in East Asia and 18 per cent in South Asia in 1960; by 2000 the percentages would have risen to 43 per cent for East Asia and 35 for South Asia. This is already having its inevitable consequences like the flight of artisans from the village scene, disintegration of the joint family system, social tensions, urban decay, and intractable problems of housing, drinking water, transport, civic amenities, sanitation, etc. There is also the reverse movement in some countries of population moving out of the metropolitan areas e.g. in Australia or the large-scale depopulation of cities e.g. in Kampuchea.

The available evidence in the region also shows that in spite of the avowedly important objective of social justice, enjoined by a number of countries, the gap between the haves and have-nots has widened further in recent years. Many people enjoy affluence at the expense of the poor and the gains of economic development do not necessarily flow to the lower strata of the society. In almost each and every country there are articulate pressure groups who wield immense economic and political power. People in the upper income deciles also try to grab seats in educational institutions and use their degrees as a passport for upward social mobility.

A great many of the difficulties faced by people in the region are deeply rooted in their social traditions, superstitions, customs and institutions many of which have outlived their utility. The attitudes of people towards manual work, the crass contempt towards the deprived sections of the society, the roadblocks to mobility in the form of local or family affiliations, the inferior position of women, the caste-ridden society and rigid occupational structures in some countries (e.g. in India) are but a few examples of problems that afflict the Asian people. Poverty and low productivity form a vicious circle and the 'culture of poverty' is generally responsible for the lack of resilience, inability to expose children to a variety of experiences, and the incapacity of youth to adjust their life-patterns to changing environmental conditions. Institutions for social and political participation as well as those for community development and co-operation have not only decayed but become dysfunctional owing to unhealthy rivalries, the deleterious effects of illiteracy and ignorance, and many other baneful influences. People are also torn between inherited attitudes and institutions on the one hand and 'modernization ideals' on the other. Because of the problems of transition, people have by and large become cynical.

There is a 'revolution of rising expectations' in countries of the region but hardly any fit between aspirations on the one hand and policies and programmes on the other. People look for an economic and political agenda and results to be achieved in the shortest possible time but are disillusioned by low achievement levels. There is also a mismatch between education and jobs in most countries of the region. While there is a lack of reliable data on population and job opportunities, it seems that the problem of unemployment and underemployment, particularly of educated youth has acquired serious dimensions in recent times and become an explosive issue in a number of countries. The figures available for a few individual countries show that the situation is rather alarming. In Bangladesh, about 44 per cent of the educated job seekers were unemployed in 1973. The rate of surplus varies from one category to another with the highest (68 per cent) for those having secondary school certificates, higher secondary certificates and bachelors' degrees. In India, the incidence of unemployment decreases as one goes up the educational ladder; only 9.0 per cent postgraduates are reported to be unemployed while the corresponding figure for graduates and undergraduates is 14 per cent. In Malaysia, unemployment as in 1972, had tripled in a matter of five years in respect of those with education up to ten years. Unemployment in Nepal,

as revealed by the survey undertaken by the National Planning Commission, is 5.62 per cent of the total labour force. Most of the unemployed are in urban areas and with different levels of formal education. The overall urban literate unemployment in the 1972 survey was 11 per cent. The problem of educated unemployment in Pakistan is ascribed mainly to the deficiency of demand. It is estimated that in 1971-1972, the unemployment rate for those with higher secondary certificates was 4.2 per cent and for degree holders 5.8 per cent. In the Philippines, around 1972, one-third of all college graduates were reported to be without jobs. The rate of unemployment rose with the level of education; the highest unemployment rate viz. 5-6 per cent faced by secondary, vocational and teacher training graduates. At the other end of the spectrum, China has succeeded in raising its employment level through various measures such as collectivization of farming, rapid growth in the supply of manufactured goods and diversification of the farm economy (Unesco, Bangkok 1982 and Unesco 1980). While it is true that the creation of jobs is mainly a function of the state of health of the economy, economic policy, the rate of economic growth and the vitality of the social and political institutions of the particular country, education also has some responsibility in the matter. In many countries, such is the present nature of education and its contents that it fails to respond to the specific requirements of the economy and to prepare educated youth for productive work and entrepreneurship.

In the context of the Asian situation outlined above, it is important to view development as a holistic approach encompassing all its economic, political and cultural aspects. 'The objective of the strategy should', as pointed out in the Annual Report of the Economic and Social Commission for Asia and the Pacific 'include improvements in the standard of living of all people in the region, with particular concern for the improvement of the conditions of life of the poorest segments of the population in all countries, and a greater degree of participation in the process of development by sections of society at lower levels of income, and by women and youth. In view of the preponderance of population, poverty, and underutilized human resources but potential for development in rural areas, the strategy should place its primary operational emphasis on integrated rural development. In that and other contexts, it should include provision of greatly enhanced employment opportunities, better-mobilized financial resources, expanded and more widely accessible social services and improvement in human settlements and environmental standards' (ESCAP).

It must also be recognized that no single model of development would be applicable to all countries of the region. The models have to grow in response to genuine needs and the genius of people. Plans for economic or educational development which do not recognize this basic element concerning social and economic organization in countries of the region and depend on models suited to highly industrialized countries often go awry on this account if for nothing else.

It may not be easy to meet all the challenges inherent in a developing situation like the one obtaining in Asia and the Pacific region but the greatest asset of countries in the region is that there has always been a tradition of learning and respect for scholarship. The high regard for learning is reflected, for example, in the respect for gurus (teachers) in ancient India where even the king would prostrate himself before the guru. The Islamic culture also traditionally revered learning and accorded men of letters (ulama) a high status in the social hierarchy. In ceremonies surrounding the dedication of a new temple in Thailand, each person, as part of the ritual, drops a packet in the deep hole; the packet invariably containing a needle, thread, booklet and pencil. The needle and thread are symbolic of the wish to have a keen intelligence, while the paper and writing implement stand for good education in the next existence (Terwiel 1977). It is from the spontaneous urges of the inner being, as if it were, that people almost everywhere in the region are now striving for the establishment of a 'learning society'.

Notes

1. Taxila was an exclusive centre for higher education. Its students were drawn from all castes and social ranks. Studies were chosen by the students out of a very wide variety of offerings (Education in the Perspective of History by Edward D. Myers, Longmans, 1963, p. 59).

2. Nalanda, a Buddhist monastic centre is another example of an institution functioning as a university during ancient times. The Chinese pilgrim Hsuan-Tsang has left a detailed account of the centre, its course offering excellent teacher-pupil ratio and the fact that it drew scholars from far and wide. It continued to flourish as a centre of learning up to the 12th century. Its total population was in thousands and the students and teachers were maintained out of the revenues of 100 villages endowed for the purpose.

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CHAPTER II

Recent Trends in Educational Development

Events in the field of higher education in the Asia and Pacific region have moved so swiftly during the last two or three decades that to speak of 'recent trends' may appear to be somewhat anachronistic and at least some of the trends may, by the time they become known, turn out to be of historical rather than contemporary interest. The system has undergone such far-reaching changes that in some of its essential aspects, its shape has changed beyond recognition. Even so, analysis of the recent trends and of those quantitative indicators which have a direct or indirect bearing on the quality of education is an essential part of the preview of higher education. Apart from having an overall view of the system of higher education and the path it has taken in recent years, one should also have an idea of some of the parameters within which the system is likely to operate in the near future. Three parameters of direct relevance to the development of higher education in the region may possibly be delineated viz. the size of population, the level of illiteracy and the extent of poverty.

Demographic factors exert influence and pressure on the demand for education at different levels and also determine the adjustment between supply and demand and whether there is any 'mis-match' between the outturn of graduates and the absorption capacity of the economy. It is on factors like the size and density of population, its concentration in rural or urban areas, fertility and mortality rates and the age-structure that the quantitative expansion of education and to some extent, even its quality depends.

One of the chief characteristics of Asia as a region is its enormous size of population. According to estimates of population for 1980 (mid-year), Asia (excluding Arab States) had a population of 2,510 million, Oceania 23 million and USSR 266 million. These regions together account for 63.4 per cent of the total world population (Unesco, 1982, Table 1.1).

The density of population varies from 3 persons per sq.km. in Oceania to 12 in USSR and 93 in Asia as compared to the world total of 33. There are some countries with very low densities viz. Australia (2); while there are others with very high densities such as Bangladesh (616), Republic of Korea (388) and Japan (314) (Unesco, 1982, Table 1.1).

Besides high density of population, countries in Asia also have a markedly high birth rate. Population in most of these countries has been increasing at a rate of about 2 per cent per annum, thus making the age structure of the population predominantly young. The proportion of persons in the age-group 0-24 was 57.3 per cent in Asia, as compared to 52.6 per cent in America and 39.8 per cent in Europe (including USSR). This youthful age structure of the population has implications for planning of education and for mobilizing greater resources for education at the primary and secondary levels. It is, however, estimated that because of the small family norm being adopted in a number of countries, the annual average increase in the age-group 0-24 in Asia will decline from 1.7 per cent in 1970-1980 to 0.9 per cent in 1980-1990 and 0.5 per cent in 1990-2000 (Unesco,1982, Table 1.2). This, to some extent, is likely to reduce the strains to which the systems of education and available budgetary resources in Asia have generally been put during the past many years, owing to what has been called the explosion of numbers.

A factor that has a direct bearing on the development of education in Asia is that most countries, especially in southern Asia and South-Eastern Asia have very low per capita incomes. The per capita income for southern Asia, South-Eastern Asia and eastern Asia was US$680 (1977), as compared to 2,060 (1978) in South Western Asia, 5,000 (1977) in Oceania, 5,180 (1977) in Europe and 8,510 (1978) in northern America. The variations are extremely wide; with Bangladesh with a per capita income of US$112 in 1978, Burma (113) in 1977 and India (150) in 1977 in the lowest bracket and New Zealand (5,346), Japan (7,153), and Australia (7,515) (all in 1978) in the top bracket. Apart from these variations, average annual rate of growth of current domestic product at constant prices has gone down during the period 1970-1978 as compared to the period 1960-1970 in a number of countries viz. Australia, India, Japan, Pakistan, Sri Lanka and Thailand. The decline is perceptible in the case of Japan. However, a few countries in the region viz. Iran, Korea Republic, Malaysia, Philippines and Singapore have also registered marginal increases in the rate of growth (United Nations, 1979/1980).

Another important aspect of the development of higher education in Asia is that in a number of countries, it has necessarily got to coexist with a vast body of illiterate population at least during the next two or three decades. There are four countries with an illiterate population (15 years of age and above) of half but less than two-thirds, viz. Democratic Kampuchea, Iran, Lao Democratic People's Republic, India and four countries with an illiterate population of two-thirds or more, viz. Afghanistan, Bangladesh, Nepal and Pakistan. These countries, it would be noted, are at different levels of economic and educational development. It would also be seen that there is no real correspondence between the level of economic development and illiteracy or the level of educational development and illiteracy (Unesco, 1982, Table 1.3).

It may sound platitudinous but needs to be stated that countries with a high percentage of illiteracy have to allocate a significant portion of their educational budgets to primary or elementary education and programmes of adult literacy, which implies that the share of higher education becomes less than commensurate. Higher education systems in these countries also face the problem of granting access to a large number of students who belong to what is called the 'first generation of learners'. Higher education in the midst of illiteracy may also lead to an 'ivory tower' approach and all kinds of distortions and irrational attitudes towards work and the existing patterns of social life, thus creating a wide gulf between the town and the gown.

There was an unprecedented linear expansion of higher education in the region in the fifties and sixties, which somewhat slackened during the last decade. The following table gives the annual average increase in enrolment percentage between 1965-1970 and 1970-1980 for different regions.

Table

Annual Average Increase in Enrolment Percentage

Region	Period	Total	First level	Second level	Third level
World Total	1965-70	3.3	2.6	4.2	8.3
	1970-80	2.7	2.2	3.4	4.6
Africa	1965-70	5.6	5.0	10.0	9.0
	1970-80	7.6	6.8	11.7	10.5
America	1965-70	3.0	2.6	5.1	9.6
	1970-80	2.0	1.7	1.5	4.9
Asia	1965-70	3.8	3.2	4.7	10.9
	1970-80	3.4	2.8	5.0	4.9
Europe (including USSR)	1965-70	1.6	0.6	2.6	5.2
	1970-80	0.2	1.2	1.5	3.5
Oceania	1965-70	3.1	2.3	4.3	7.0
	1970-80	1.4	0.5	1.9	6.4

Source: Unesco Statistical Yearbook, 1982, Table 2.2

It is evident from the above table that with the exception of Africa there has been a general decline in the annual percentage increase in enrolments at all levels of education and even an overall decrease has been registered in Europe including USSR at the first level of education. The decline has been most perceptible at the third level of education in Asia, one explanation for this would be the low level of enrolment during the initial years but more pertinently it would seem that the enrolment increase had not stabilized at a self-sustaining level. The average annual increase of 4.9 per cent in third-level enrolments in the Asian countries would still be indicative of regulated growth when offset against a population increase of about 2 per cent per annum in these countries.

Enrolment at the tertiary level as a proportion of the total enrolment at all levels of education varies from one country to another but generally speaking, it is around 1-3 per cent in the developing countries and 8-10 per cent in the developed countries of the region (Education 1980). The above figures indicate a positive and significant relationship between the stage of development reached by different countries and the proportion of enrolments at the tertiary level.

Enrolment ratio as a proportion of the age-cohort 18-23 in the Asian countries has increased steadily between 1960 and 1980, although it is far below the levels reached in America, Europe and Oceania. In terms of percentage, enrolments in the Asian countries at the third-level increased from 4.3 in 1960 to 6.2 in 1965, 7.5 in 1970, 9.1 in 1975 and 10.3 in 1980 (Unesco, 1982, Table 2.11). This development during a period of three decades should be regarded as considerable achievement by any yardstick.

The number of institutions of higher education and student enrolments in some countries in the region have increased to such an extent that the system has become a gigantic enterprise. For example, there are 5 million students in 900 institutions

of higher learning in the USSR. Every year they graduate 700,000 specialists in 430 fields. There are 4.6 million students in 4,312 specialized secondary schools. Besides, there are 67 universities, large academic and research centres, which train specialists in the natural and exact sciences and the humanities. They train around 600,000 students (Education, 1981). In China, higher education is provided in some 675 institutions of various types including general universities, technical universities, specialists institutions and teacher training colleges with an enrolment of 1.1 million (This Generation, 1981). In India, there are 118 universities, 13 institutions deemed to be universities and 4,886 colleges. University level enrolment has touched a figure of approximately 3 million (UGC 1981-1982).

This expansion has brought into focus the question whether higher education systems in the region have become more egalitarian or not. It seems that in spite of the spectacular growth of higher education and the investment of a significant proportion of funds for the development of universities, it is only in a few countries of the region (e.g. Australia, Japan, New Zealand, Philippines and USSR) that higher education has acquired a mass character and reached the lower echelons of the society. Other countries which made heroic attempts to push enrolments have come up with unexpected difficulties in terms of resources, infrastructure, inputs and the absorption of trained manpower. Willy-nilly, they had to initiate steps to regulate the growth of numbers, the intake capacity of institutions and the establishment of new universities and other institutions of higher education.

For example:

In India, a six-point national enrolment policy based on the following considerations has been suggested by the University Grants Commission: (i) Regulation of admission in order of merit keeping in view the intake capacity of each department or a college without affecting standards; (ii) checking the establishment of new universities and colleges except in backward areas where also it may be considered only after a survey of its educational needs; (iii) vocationalization of the secondary level of education and its impact on university admissions; (iv) restructuring of courses of study at the first degree level; (v) provision of facilities for greater enrolment through correspondence courses; and (vi) equalization of educational opportunities for weaker sections of the society.

In USSR, it is felt that the present scope of the training of highly qualified specialists already basically satisfies the requirements of the economy. This largely explains why quantitative targets in the new plan (1981-1985) have been pegged at the previous level. Another reason for stabilizing the number of admissions to higher and specialized secondary educational establishments in the Soviet Union is the demographic situation, characterized by a sharp fall in the inflow of labour reserves.

In Japan, the Planning Committee established by the Ministry of Education in its higher educational plan for the period 1975-1980 suggested a moderate expansion of enrolments as the main objective of planned development. The Committee also submitted its second plan for the period 1981-1986, which continues the policies of the previous period, specially the firm constrictive policy line. It is also proposed to curb the establishment of private universities and junior colleges in major urban areas.

In Australia also the Government's concern, following the Williams Committee Report (1979) is for consolidating quality of education following the increase in quantitative expansion that took place during the last three decades.

Bangladesh proposes to restrict expansion of enrolment in the humanities stream by providing more facilities for improved teaching of science, commerce and home management.

The fact that higher education in the region has grown in a spectacular manner does not mean that the present level of enrolment in the region is adequate. In terms of third-level enrolment per 100,000 inhabitants, countries of the region are way behind most of the advanced and some of the developing countries of the world. Moreover there are wide variations within the region itself. The figures for 1979 indicate the following frequency distribution:

Third-level enrolment per 100,000 inhabitants	Names of countries	Total number of countries
Less than 200	Afghanistan, China, Kampuchea, Laos, Pakistan and Sri Lanka	6
200-500	Bangladesh, Burma, Indonesia, Iran, Malaysia, Nepal and Viet Nam	7
500-1,000	India, Mongolia, Singapore and Turkey	4
1,000-1,500	Korea Republic and Thailand	2
1,500-2,000	USSR	1
More than 2,000	Australia, Japan, New Zealand and Philippines	4

Source: Unesco Statistical Yearbook 1982, Table 3.10

Thus only five countries of the region could compare favourably with countries in Europe, Canada and USA in regard to higher education enrolments; while the position would appear to be woefully inadequate in at least 13 countries of the region.

According to trends and projections of enrolment by level of education and by age prepared by Unesco (1977), South Asia, South-East Asia and Middle-South Asia would be far below the enrolment ratios for the world as a whole for the age-group 18-23 in the year 2000 AD. In contrast to this, East Asia, Japan, South-West Asia, Oceania and USSR would be above the world average. The picture for different parts of the region is indicated in the following table:

TABLE

Projections of enrolment ratio by sex

Region	Year	MF	M	F
East Asia	1985	28.5	36.0	20.6
	2000	30.3	37.9	22.5
Japan	1985	33.9	43.3	24.1
	2000	34.0	42.9	24.7
Other East Asia	1985	19.5	23.9	14.7
	2000	23.7	28.7	18.4
South Asia	1985	8.6	11.4	5.6
	2000	10.4	13.0	7.7
South-East Asia	1985	10.8	12.4	[illegible]
	2000	13.0	14.6	11.3
Middle South Asia	1985	6.8	9.7	3.8
	2000	7.9	10.6	4.9
South West Asia	1985	18.4	24.6	11.9
	2000	25.2	30.2	19.9
Oceania	1985	21.8	25.2	18.2
	2000	26.2	29.7	22.5
U.S.S.R.	1985	30.4	29.2	31.7
	2000	32.7	31.5	34.0
World Total	1985	18.9	21.7	15.9
	2000	20.3	23.2	17.3

Source : UNESCO, Trends and Projections of Enrolment by Level of Education and by Age, September 1977, CSR-E-21.

It is thus evident that in a number of countries in the region, there is scope for expanding higher education; nevertheless their tight budgetary resources and other constraints make it difficult for them to do so. In particular, they are faced by the dilemma between the need for expansion on the one hand and consolidation of quality on the other. It is in this context that the problem of access to higher education has become particularly important.

The conditions and practices in regard to admission to higher level courses vary from one country to another.

A number of countries (e.g. Iran, Afghanistan, Bangladesh, Burma, Democratic Kampuchea and the Democratic People's Republic of Korea) allow each university to determine enrolments, which are based on performance and grades in the qualifying examination. In some cases, this is supplemented by tests, interviews, etc. conducted by an individual department, faculty or university. A few countries have, in recent years, gone in for centralized admissions on the pattern of UCCA (Universities Central Council on Admissions) in the United Kingdom. For example, in Thailand, a central clearing house has been established to guide students into courses and institutions according to their needs and aptitudes and the requirements of the country. In Sri Lanka, the power to regulate admissions is vested in the University

Grants Commission (UGC) but the UGC has delegated to the Open University and the six institutes the power to admit students. Likewise, the power to admit students to postgraduate courses has been delegated to the universities. However, the UGC handles all admissions to undergraduate courses offered by the universities and the university colleges. The Korean Republic has, since the academic year 1981, adopted the system of admissions based on scores in the national preparatory college entrance examination. This replaces the earlier system when the recruitment criteria included the national preparatory college entrance examination as well as an entrance examination conducted by each institution of higher education. In China also, selection for university-level courses is normally based on a nationally unified entrance examination taken mostly by secondary school students. Applicants to the national and public universities in Japan are required to take a joint achievement test for the first stage but for the second stage examinations are administered by each university (World Guide).

The trend towards broadening of access is also noticeable in some countries. In Australia, all institutions of higher education have special entry provision for mature students (usually required to be at least 22 years of age). Some universities and colleges of advanced education offer bridge courses for students whose matriculation standard does not need the requirement for entry to higher education. These courses are offered in the summer vacation prior to the commencement of the new academic year. Courses in mathematics, sciences and English are the main ones offered. In Democratic Kampuchea, certain courses may be entered by holders of the lower secondary school certificate or by civil servants of at least three years standing (World Guide).

The problem of access is closely related to the total duration of school and university-level courses. The duration of courses at different levels of education also has an important bearing on the objectives and contents of courses, methods of teaching and evaluation, student achievement and the maintenance and upgrading of the standards of teaching and research. If the duration of courses at the primary and secondary levels is too short, students would enter the tertiary sector of education at too immature an age to take advantage of higher-level courses. On the other hand, university-level courses cannot be sufficiently enriched or made challenging enough or lead to the necessary degree of specialization if the duration of the first and second stage of higher education is not suitably adjusted. It is, therefore, imperative that the duration of courses is so determined that standards of university education become internationally comparable. Partly because of the legacy of the past and partly due to the exigencies of the contemporary situation calling for the expansion of education in the shortest possible time, the duration of courses leading to the first degree in general education had been deliberately kept low in a few countries of the region.

The duration of courses leading to the first degree in general education is the lowest in India, Pakistan and Bangladesh; the duration being 14/15 years as compared to 15/16 years in Australia, 15 years in Burma and Turkey, 15/17 years in USSR, 18 years in Democratic Kampuchea, and 16 years in Indonesia, Iran, Japan, Malaysia, New Zealand, Mongolia, Republic of Korea, Sri Lanka and Thailand (World Guide).

Pakistan tried to introduce the three-year degree course in place of the two-year degree course in general education but this had to be abandoned due to student protest. In India the Central Government in consultation with the universities and the state governments agreed to increase the duration of courses leading to the first degree in general education from 14 to 15 years and also to provide financial assistance for the purpose. However, as things stand today, different states have put themselves into different moulds. On a rough and ready basis, nearly two-thirds

of the students qualify for their first degree after completing 15 years while their counterparts in other states can get away with it in 14 years only. The 10+2+3 formula had been recommended with the avowedly important objective of bringing about uniformity in the educational pattern of the country, as well as some degree of comparability with universities outside where the total duration of courses leading to the first degree varies from 16 to 18 years. This has not materialized and in spite of the recommendations of the Three-Year Degree Course Estimates Committee made nearly 25 years ago, there still exists a two-year degree course in many universities. Even where the new pattern of 10+2+3 has been introduced, there is a lingering doubt that the opportunity has not been properly utilized for the enrichment of courses.

Partly because of broadening access to higher education but mainly due to inherent difficulties in diversifying students at the earlier levels and in engaging them in gainful occupations, the shape of the educational pyramid as determined by gross enrolment ratios at the three levels of education has changed during the period 1960 to 1980. In Asia, the ratios were 66.5, 20.3 and 2.9 in 1960 at the first, second and third levels of education respectively. This changed to 84.8, 34.9 and 8.1 in 1980. In Oceania the ratios changed from 101.5, 52.8 and 9.9 to 100.5, 70.6 and 21.1 (Unesco, 1982, Table 2.10). Thus in Asia and Oceania, the shape of the educational pyramid has changed immensely due to relatively greater increase at the third level of education. This would, to some extent, reflect greater demand for educated manpower at the higher level in response to the growth of industries or changes in technology.

The net outcome has been that over the years, the base of education has become narrow and its top heavy; a development which should be viewed with mixed feelings. The relatively greater increase in the growth rates of higher education without commensurate quantitative and qualitative developments at the level of primary education has created a certain imbalance. While the situation calls for concerted efforts to establish a kind of equilibrium, it also indicates that within the educational hierarchy itself, higher education is no longer a preserve of the elite that it used to be until a few years ago.

The following table gives third-level enrolments according to fields of study based on the International Standard Classification of Education (ISCED) for some typical countries selected from different parts of the region. Information relates to graduates and selected fields of study only.

Field of study

TABLE

Country	Year	Education Science & Teacher Training	Humanities, Religion & Theology	Law	Social and Behavioural Sciences	Commercial & Business Administration	Natural Sciences	Engineering	Total
India	1976	67,090 (8.9)	1,391 (0.2)	33,476 (4.5)	366,088 (48.8)	116,039 (15.5)	114,177 (15.2)	13,611 (1.8)	749,454
Pakistan	1977	6,031 (10.9)	36,779 (66.7)	1,642 (3.0)	-	1,826 (3.3)	6,171 (11.2)	714 (1.3)	55,112
Burma	1978	954 (4.1)	3,188 (13.8)	272 (1.2)	2,657 (11.5)	554 (2.4)	11,600 (50.1)	575 (2.5)	23,141
Indonesia	1976	5,338 (20.0)	363 (1.4)	2,699 (10.1)	4,200 (15.7)	-	885 (3.3)	3,033 (11.4)	26,666
Japan	1978	67,439 (11.7)	91,546 (15.9)	-	72,909 (30.0)	-	9,994 (1.7)	98,479 (17.1)	575,774
Australia	1979	20,133 (30.5)	8,364 (12.7)	1,693 (2.6)	1,917 (2.9)	8,043 (12.2)	8,154 (12.3)	3,493 (5.3)	66,040
Iran	1976	3,503 (7.9)	7,834 (17.6)	721 (1.6)	2,383 (5.4)	3,951 (8.9)	3,482 (7.8)	8,172 (18.4)	44,388
Mongolia	1979	230 (12.1)	137 (7.1)	34 (1.8)	30 (1.6)	58 (3.0)	-	352 (18.5)	1,907
Papua New Guinea	1979	79 (15.7)	4 (0.8)	34 (6.8)	95 (18.9)	65 (12.9)	28 (5.6)	70 (13.9)	502

(The figures in parenthesis indicate the percentages)

Source: Unesco Statistical Yearbook 1982, Table 3.14

The above table shows that the range in each field of study is so wide that it would be hazardous to draw any conclusions in regard to the adequacy or otherwise of enrolments in a particular field of study. There are also large scale variations from year to year. With these caveat in view, the table does bring out rather succinctly the low proportion of enrolments of teacher training in Burma, of humanities, religion and theology in India, Indonesia and Papua New Guinea, of law in Burma, Iran and Mongolia, of commercial and business administration in Burma, Mongolia and Pakistan, natural sciences in Japan and Indonesia and engineering in Pakistan and India.

Over a long period of time, there has been a substantial increase in science-based courses, which has come about partly in response to demands from industry and partly as a result of positive efforts made in this direction. For example, in India, science education has been promoted through various measures such as the provision of centres of advanced study in science subjects, college science improvement programme, university leadership projects, establishment of science education centres and support for infrastructural facilities by way of laboratories, equipment, core staff and research facilities.

There is no accepted formula for distinguishing between the first and second stage of higher education in countries of the region and even the definition of what constitutes these stages has been changing from time to time. It would, therefore, be invidious to make comparisons in this regard over a period of time but in general, it may be stated that postgraduate and research enrolments have increased at a relatively lower rate as compared to undergraduate facilities and this trend is more pronounced in the developing countries of the region.

The following table gives the pupil-teacher ratio for Asia and Oceania during the period 1965 to 1980 at the third level of education:

TABLE

Pupil-teacher ratio 1965-1980

		-5	6-10	11-15	16-20	21-25	+25
Asia	1965	-	5	10	7	2	3
	1970	2	5	13	8	2	1
	1975	1	9	10	9	2	2
	1980	-	14	11	7	-	4
Oceania	1965	2	1	1	1	-	-
	1970	2	3	-	1	1	-
	1975	1	4	1	-	1	-
	1980	3	4	2	2	1	-

Source: Unesco Statistical Yearbook 1982, Table 2.7

The above table shows that the number of countries with pupil-teacher ratios of more than 11:1 has generally gone up in Oceania during the period 1965 to 1980 but in Asia, the increase has been in respect of pupil-teacher ratios of less than 10:1. Nearly two-thirds of the countries in Asia have a norm of 6-15 by way of pupil-teacher ratio at the third level of education. This is much lower than the norm at the first and second levels of education and has far-reaching implications in so far as budgeting and educational efficiency are concerned.

It seems that the education of girls which is regarded as a key factor in the development of society and the mobilization of human resources has not received, in general, adequate attention in the region. The percentage of girls in total enrolment is lower in Asia than the world total and this applies to all levels of education. However, the percentage has gone up considerably at the level of higher

education from 26 per cent in 1965 to 32 per cent in 1980 (Unesco, 1982, Table 2.4). There are two countries in the Asia and Pacific region in which girls' enrolment at the third-level constitutes even less than 20 per cent of the total enrolment in universities and equivalent institutions (1979) viz. Afghanistan and Bangladesh. Countries with about 50 per cent girls' enrolment in the region are Burma, Mongolia and the Philippines. It is, however, interesting to note that with the exception of one or two countries in the region, girls are now being drawn to diverse fields of study like law, commercial and business administration, natural sciences, engineering, etc.

Even to a casual observer of the educational scene in Asia, it would be evident that the countries of the region are not able to invest a significant proportion of their resources for the development of higher education. The private demand for higher education in these countries has grown so rapidly and the passion for finding a seat in an institution of higher education is so intense that there is hardly any equilibrium between the demand and supply of higher education. On the other hand, the per capita income of the countries is low and the governments of these countries which are interested in rapid economic development regard education as but one subset in a complex of factors that bring about economic development. Education has to compete with a number of priorities such as agriculture, irrigation, industry, transport, communications, etc. It is, therefore, not surprising that the public expenditure on education in Asia is low. In 1979, it was 5.0 per cent of the GNP as compared to the world total of 5.6 per cent. The percentage is better than the one obtaining in Africa (excluding Arab States) (4.0 per cent) but is much lower than in America (6.0 per cent), Europe including USSR (5.5 per cent) and Oceania (5.8 per cent). However, the redeeming feature is that the actual expenditure on education in Asia has increased by 12.1 times during 1965 to 1979 as compared to 8.2 times in Africa (excluding Arab States), 4.5 times in America, 5.4 times in Europe including USSR and 8.3 times in Oceania (Unesco, 1982, Table 2.12).

The average expenditure indicated in the foregoing paragraph does not reveal the complete picture as there are wide variations within the region itself in regard to total public expenditure on education. Most of the countries viz. India, Indonesia, Iran, Korea Republic, Pakistan, Philippines, Singapore, Sri Lanka and Thailand spend between 2 to 3 per cent on education as a percentage of GNP. There are four countries with a proportion of less than 2 per cent viz. Afghanistan, Bangladesh, Burma and Nepal[2]. On the other hand, the level of expenditure is 5 per cent of the GNP or more in five countries viz. Japan, Malaysia, New Zealand, Australia and USSR (Unesco, 1982, Table 4.1). Papua New Guinea spends about 10 per cent of its gross national product on education, thus placing it in the small group of Third World countries spending a higher percentage on education than even industrialized countries (Education 1979).

Teachers' salary constitutes the most important component in the current public expenditure on education in the countries of the region. Generally speaking, it varies between 50 and 75 per cent although there are certain countries with a much larger proportion viz. Korea Republic (78.2 per cent), Singapore (94.4 per cent) and Turkey (92.6 per cent) (Unesco, 1982, Table 4.2). The figures show the inadequacy of funds that become available for other important inputs like books and journals, equipment, teaching aids, scholarships, fellowships, etc. The high proportion of teachers' emoluments also indicates that the proper utilization of teaching time is and would continue to be a determining factor in the overall recurrent cost of education.

Notes

1. The level of literacy is quite adequate in Hong Kong, Japan, Korea Republic, Mongolia, Philippines, Sri Lanka, Thailand, USSR, Australia and New Zealand.

2. It may be mentioned in this connection that the 'Karachi Plan' for Education in Asia envisaged the expenditure of 4 to 5 per cent of GNP on education by 1980; Unesco and ECAFE, Final Report, Meeting of Ministers of Education of Asian Member States Participating in the Karachi Plan, Tokyo, 2-11 April 1962 (Bangkok, 1962).

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CHAPTER III

Innovations in Higher Education--Country Experiences

Education which is regarded as a key factor in economic development and social transformation must necessarily be introspective and critical of its own role even while planning for future growth and the strategies for development. A good, efficient and relevant system of education must be forward-looking and flexible enough to go in for the 'adventure of ideas' or else it would become a bulkwark for maintaining itself and the status quo. The extent to which universities and other institutions of higher education in the Asia and Pacific region have been innovative is not easy to determine, but the fact is that there is no innovation that has not been tried out by one university or another in the region; whether it has really caught on and made an impact is a matter of value-judgement. In this context, it would be rewarding to have a close look at individual country experiences in specific areas. The stories include many themes beginning with the formulation of goals and going on to changes in structure and organization, courses and curricula, improvement of teaching and evaluation, developing alternative delivery systems, establishing channels of communication with the community and linking education and research with development.

Goals of higher education

The goals of higher education which are being stated and redefined almost everywhere in the world have been subjected to a fundamental reappraisal in the developing countries of Asia. Many of these countries were under the shadow of colonial regimes for long periods in their history and as such their university system did not evolve itself nor did it grow from the native soil. It was an 'alien transplantation' meant to serve the narrow and limited purpose of training civil servants to meet the day-to-day needs of administration. The system laid greater emphasis on narrow individualism, verbal fluency and acquisition of information, while it neglected social objectives and the needs of development. Important areas in science, engineering and technology, which were otherwise relevant to national development, were not included in university courses of study. The academics lived in an 'ivory tower' of their own and were cut off from the realities around them. Consequently, the system became a gigantic monolith, very difficult to move or change, and proved itself to be totally inadequate to meet the cultural aspirations of the people and the needs of emerging national systems.

The advent of independence in many countries of the region brought about a reorientation of the goals of higher education and from narrow based systems, fitted into a strait-jacket, the countries concerned tried to transform higher education to enable it to become more relevant and functional. Efforts were made to diversify the structure by establishing new types of institutions and also locating them in regional settings where they could impart greater relevance to their courses of study and programmes. The institutions of higher education in the region which were steeped in the liberal tradition of the universities of Europe started putting much greater emphasis on economic development and social objectives. The goals of higher education formulated by several countries in their plans and policy documents show a new awareness of the liberal as well as utilitarian functions of universities and other institutions of specialized training and also reflect the cultural, economic and socio-political imperatives of the contemporary society.

In India, the University Grants Commission prepared a Policy Frame (Development, 1978) for the development of higher education over the next 10 to 15 years. It defines

theories of learning and the vast, precise methods for their application which are necessary to national and world welfare, and to cultivate the virtue of leadership.

In the Democratic People's Republic of Korea, the goal of higher education is the industrialization of the country on a socialistic pattern and the training of technical personnel required for the purpose. This involves an ideological approach as well as improvements in the cultural and technical levels of university graduates. Since the central universities and colleges were not in a position to cope with the demand for technicians and specialists, an agricultural college, a medical college, a normal college and a teacher training college has been established in every province of the country in order that the localities train their own technicians according to needs and requirements (Djin 1978).

In the Mongolian People's Republic, the aim of higher education is to develop the knowledge of the student in regard to general education and technical education and the cultural aspects of development. Students are trained for highly specialized professions after equipping them with an understanding of the working of scientific and industrial enterprises (The Development 1975).

The primary aim of universities of Japan has shifted and the universities have assumed the role of selecting and training much of the nation's manpower (Shimbori, 1981). The Planning Committee in its higher education plan for the period 1975-1980 has advocated that universities should serve local areas and respond to urgent social needs as for medical doctors and teachers (Innovative Developments 1982).

In Australia, (Clarke and Birt 1981) the policy objectives that guide the Commonwealth Government are (i) strengthening and concentrating research in universities and (ii) continuing to monitor and adjust the education system. In regard to the total education system ranging from the school sector to the university sector, the Government's emphasis is on the evolutionary processes of education rather than on its structure.

In the Socialist Republic of Viet Nam, the main objective defined by the General Assembly in its session in late 1977 is to train and foster trained manpower on an ever increasing scale to meet the requirements of division of labour in large-scale production, combine study with productive work and develop a network of universities, colleges, etc. and link these with production units and scientific and technological research institutions (Bulletin 1979). The colleges offer in-training courses, correspondence courses and crash courses with the objective of training scientists, technicians, economists and cadres for cultural activities, health services and educational programmes. The training plan is generally in tune with the economic plan of the state (Hong 1981).

Structure and organization

Keeping in view the objectives outlined above and the change in emphasis from education as a 'consumption good' to education as an 'investment' for human resource development, many important changes of a far-reaching character have taken place in the structure and organization of higher education in the region in the last few years. In a sense, the changes reflect the basic concept of a university as a dynamic and evolving organization, which has to serve the dual purpose of preserving the value-system of the society as well as being its critique. The university cannot discharge its functions if it ceases to be a living organism. On the other hand, if changes are made too frequently with every change of wind, the structure may not become reasonably stable. The system should be 'forward-looking' without being uncertain about its perspectives.

The systems of higher education in the region are highly diversified in all essential respects in regard to their organization and structure, degree of autonomy,

admission of students, development of curricula, methods of teaching and evaluation, machinery for accreditation, planning and co-ordination and models for planning. In most countries of the region, the structure is monolithic and generally under the control, supervision and direction of a central authority. The institutions of higher education are controlled and funded by government and planning is done by central agencies. In some countries, the curricula have to be approved by the central agencies (e.g. Thailand and USSR) and in a few others, faculty appointments have to be approved by the Government (e.g. Indonesia and Viet Nam). Iran[1], Afghanistan, Pakistan, Bangladesh, Indonesia, Viet Nam, Philippines, China and Japan are examples of structures having been evolved on a more or less uniform pattern. On the other hand, Australia and India provide examples of diversity in regard to the structure of higher education and what may be called the pluralistic system of higher education. In these countries, the responsibility of managing higher education is shared between the Federal/Union Government and the various state governments. Generally speaking, it may be stated that in a number of countries in the region (e.g. Burma, China, Democratic Kampuchea, Democratic People's Republic of Korea, Indonesia, Iran, Mongolia and USSR), the Central Government either directly or through one of its agencies, is responsible for the general direction and co-ordination of teaching and research programmes in the universities. However, in a few countries like Australia, Bangladesh, India, New Zealand and Turkey, universities are fully autonomous in academic matters such as admission of students, courses of study, methods of teaching and evaluation but are financially accountable to local, state or central authorities. Even in these countries, the accepted view is that academic autonomy does not mean that universities are not financially accountable or that they do not have to subserve the national policy objectives.

In recent years, a number of changes have been effected in regard to university legislation. An important change in regard to the constitutional and legal aspects of education in India, which has a direct bearing on the system of higher education, is that through the 42nd Amendment of the Constitution, as ratified by the State legislatures, education has been brought on the Concurrent List from the State List as originally provided in the Constitution. Before this amendment, the constitutional framework provided for Entry 66 of the Union List which gave the Centre the power to legislate in respect of co-ordination and determination of standards of higher education. However, the fact remained that the states had full authority to establish and maintain universities and this power was not always exercised keeping in view the national needs. The Centre was inhibited from taking important measures in a number of important areas such as the establishment of new universities or colleges, formulating a national enrolment policy and improving the selection procedures for appointment of university faculty in such a way that parochial and unacademic considerations did not lead to inbreeding in the system. Concurrency would enable the Parliament to legislate on educational matters for the whole country but the states have been assured that they would continue to manage education and the new power would be exercised only to enable institutions to conform to certain nationally applicable norms.

Sri Lanka had earlier experimented with the system of having a single university for the whole country. In terms of the provisions contained in the University of Ceylon Act, No. 1 of 1972, universities in Sri Lanka were made administrative units--campuses as they were called--of a single university with its headquarters in Colombo. The rationale of this structure was that it would ensure administrative economies and prevent duplication of courses resulting in wastage of resources. Recently, under the Universities Act, No. 16 of 1978, the six campuses of the University of Sri Lanka have been converted into autonomous universities. This, it is envisaged, will give the universities the much needed autonomy but it is expected that the universities will establish healthy conventions and traditions and recognize that there are common interests and responsibilities between them and the State (Handbook--Sri Lanka).

The University Grants Commission in Bangladesh was established in terms of the President's Order No. 10 of 1973. The Government grants to universities are provided through the UGC.

The University Grants Commission in Sri Lanka came into existence under the Universities Act No. 16 of 1978; its main functions are: the traditional one of allocating funds to universities; the co-ordination of teaching and research programmes in universities; and ensuring that universities accept the obligation of conforming to nationally formulated policies in such matters as university admission and the language of instruction in universities. Another important objective of the Commission is the regulation of the admission of students to each higher education institution.

New Zealand has the University Grants Committee which acts as a buffer between the universities and the government and negotiates with the government to ensure a balanced development of university education. On the other hand, in Australia, co-ordination has been brought about by amalgamating various commissions into a single Tertiary Education Commission.

Curricular reform

The general impression that one gathers from a random survey of attempts made towards syllabus reform by universities in the region is that the syllabi in different disciplines and at different levels lack purposiveness and focus and the emphasis seems to be on the quantum of knowledge rather than on its standard or quality. This, however, does not mean that universities have not realized the importance of developing relevant educational curricula or that they are not exploring the need to modify their courses in the light of past experiences and the emergence of new areas of knowledge and specializations in modern times. It only implies that such attempts have been far and few between.

An example of syllabi reform as part of a co-ordinated plan is Japan where the Ministry of Education has revised the regulations governing curricula and academic requirements for institutions of higher education. The objective is to bring about greater flexibility and student mobility through transfer of academic credits. Some universities have already introduced the new curricula and courses at the undergraduate and post-graduate levels, but it appears that these have been added on without effecting fundamental changes in academic programmes (Innovative Developments 1982).

Similarly, a co-ordinated attempt to reorganize courses with the help of panels of experts in various subjects of study has been made by the University Grants Commission in India. The subject panels review syllabi and courses of study followed by different universities at the undergraduate and post-graduate levels with reference to such courses of study being made up to date and, wherever necessary, relevant to the regional and national needs and also to bring about the necessary interdisciplinary aspects. The Commission has also prepared guidelines for the organization of courses at the first degree level in the context of the new pattern of education. The modified courses would basically have three components viz. foundation courses, core courses and courses of an applied nature. The purpose of foundation courses is to create greater awareness of self and of the social, academic and natural environment. A number of alternative courses have been suggested in this category such as: (i) Language--English including literature and/or regional language with a view to developing communication skills among the students; (ii) Social and cultural history of India/Asia; (iii) History of the Freedom Movement in India including national integration; (iv) Science in everyday life/science and society; (v) Evolution of life; (vi) Growth and development of scientific ideas; (vii) Population, health and nutrition education; (viii) Environmental studies; (ix) Value systems; (x) Resolution of conflict in society; (xi) Growth of moral and spiritual ideas; and (xii) Educational technology. The core courses would require a study of two or three disciplines

not necessarily confined to the same faculty. The purpose is to give the student an opportunity to acquire a broad familiarity with disciplines of his choice including study of at least one of these subjects in depth. The courses of an applied nature would be determined by each university and college keeping in view the local and regional needs and industries in the region.

In Indonesia, a significant measure to bring about curricula reform is the establishment of consortia of faculties in different areas such as agricultural science, technology, medical sciences, education, social sciences and humanities to serve as a watchdog for the improvement of courses, curricula, teaching and research in the respective faculties. Each consortium also examines the curriculum of similar faculties and suggests improvements. It also carries out surveys to determine the future line of development (Educational Innovation 1975).

The policies formulated in Burma aim at making university education relevant to the jobs available to workers already in a particular career; stressing, on the application side and teaching, subjects for practical application in productive undertakings; laying stress on subjects which can be taught in the respective regions of the country and encouraging such subjects to form an interdisciplinary approach (Fourth Regional Conference, Colombo 1978).

In China, measures are underway to broaden the scope of subjects in regular colleges and universities by putting more emphasis on practice and new methods of teaching. Various specialities are being readjusted in order to avoid too narrow a specialization. There is a package of proposals to improve the methods of teaching, reduce the number of required courses, increase elective courses, reduce the hours of formal class-room teaching and put increasing emphasis on experiments, practice and investigations. These are important links in the chain of teaching to enhance the students' ability to work and solve practical problems on their own (Country Statement of China).

In USSR, the methods of teaching are being changed to provide for organic combination of studies with work in science and production. This is mainly based on technology or what is called 'industrializing education'. All higher schools organize TV competitions in mathematics, theoretical mechanics, strength of materials, general chemistry and descriptive geometry. Programmed instruction has been introduced, along with examining and teaching devices. Electronics has firmly established itself in the modern higher school. Learning the programming methods and the operation of electronic computers is compulsory for most specialities taught at higher schools. Many of these schools have their own computer centres. Individual instructional videotape equipment, large TV screens and colour TV is also likely to come into use (Krasnov 1978).

In the Democratic People's Republic of Korea, the following improvements were effected during 1975-1976: (i) the development of model curriculum in selected areas; (ii) the compulsory requirement of thesis and comprehensive examination for a bachelor's degree; and (iii) the improvement of graduate education.

In the past few years, model curricula have been developed in a number of fields such as Korean literature, economics, sociology, chemical engineering, chemistry, industrial education, mechanical engineering, electronic engineering, atomic engineering and liberal education. Universities and colleges are persuaded to refer to the model curricula but are under no obligation to adopt the same (Educational Development, 1975-1976/1976-1977). More recently, the country has introduced a number of important changes in the academic programmes (Lee 1982) which have changed the focus from narrow and compartmentalized knowledge. These are intended to encourage students to do independent study rather than merely to go to class and attend lectures. There

is a shift from the traditional lecture method to student participation in class discussion and written assignments. The courses have also been reorganized to ensure greater adaptability to the needs of the society. A major and minor or double major system has been employed to help the students to secure greater breadth of academic orientation and preparation for their career. This system permits each student to select from a main academic area one or two disciplines as a major subject of study, plus another discipline as his minor subject. The degree requirement component has been reorganized with respect to the number of courses required for one's major. The structure of the courses has been altered, i.e. required courses are delineated as opposed to the distribution of electives within and without the department, or a content division.

Viet Nam has reoriented its vocational and professional education programmes with a view to combining theory with practice, study with productive work and curricular activities with social life. It is this principle which determines the content, methods and structure of the educational system. Universities and colleges are closely linked to production units and scientific and technological research institutions (Education 1979). The study plan and the curriculum content are determined keeping in view with target of education for each branch. The target includes all subjects as well as the teaching of political ideas and health, the work plan for all subjects, practical work, productive activities and examinations (Hong 1980).

The various faculties in the National University of Singapore have introduced a number of changes in the curriculum viz. a new emphasis on architectural designs in the Faculty of Architecture and Building, close consultations between the Faculty of Engineering and the recently established Nanyang Technological Institute and the setting up of an econometric studies unit for specialized training to public sector personnel.

Faculty improvement

Generally speaking, universities in the region have faced two serious problems in regard to faculty development to which they are trying to find a solution. First, it is evident that there are a number of teachers in universities and other institutions of higher education of the region who are not quite fitted by their accomplishment for efficient teaching. Second, for some time to come in view of the requirements of various sectors of national development as well as the need for expanding systems of higher education at a rapid pace, universities have to content themselves with teachers of less than outstanding ability. It is in this context that universities in the region have recognized that the education of their teachers is one of the urgent tasks and taken appropriate measures to provide all possible opportunities to teachers to improve their calibre.

In India, great importance has been attached to faculty improvement programmes by (i) providing opportunities to teachers to keep abreast of modern developments in their fields of study and research and to exchange ideas with experts in similar or related fields through seminars, summer institutes, workshops, conferences, etc., (ii) increasing the mobility of teachers and enabling colleges and departments in backward and other areas to avail of the services of outstanding teachers in different disciplines, through such programmes as national lectures, travel grants, visiting professorships, fellowships, etc. and (iii) enabling teachers to take time off their normal teaching and engage themselves in writing up the results of their studies/ research through such programmes as national fellowships, national associateships, etc.

Consequently, a number of universities and colleges in India are providing opportunities, at an increasing level, to their teachers and research workers to keep abreast of modern developments in their fields of study through seminars, symposia,

refresher courses, workshops, conferences,[2] etc. The importance attached to these programmes for updating knowledge can be gauged from the fact that during the last 15 years of their operation nearly 3,000 such programmes have been organized with more than 100,000 participants.

Pakistan has, as stated in the country paper, established a National Academy of Higher Education for the training of teachers at the UGC itself. The main objectives of the Academy are pre-service and in-service training. Pre-service training has become necessary in view of the fact that teachers come to the universities and colleges with varied background and often without any orientation in the methods of teaching. They are all kept in a hostel complex and involved in discussions, seminars, study tours and special lectures by eminent educationalists in different fields. The focus of discussion is on major advances in sciences and arts in their historical context, recent advances in differenct subjects and biographies of men of learning. The duration of the pre-service training programme is one semester of 13 weeks.

In Bangladesh (Raqib, 1982), summer institutes have been organized ever since 1966 for the improvements of teaching and encouraging the use of audiovisual aids. Teachers from the universities and colleges are given training and supplied with books and materials. An institute for the advancement of science and technology teaching has since been established to organize these seminars and to follow up the programme. The institute also renders counselling services to the teachers.

In Japan, the new Universities of Technology and Science have special graduate programmes for in-service training of teachers. Similarly the new Universities of Education have in-service training programmes for school teachers at the graduate level.

Faculty development has become a matter of great concern for universities and colleges in the Republic of Korea (Lee 1982), in view of the harsh realities of limited faculty recruitment, differences in the calibre of teachers and the demand for accountability voiced by students and other vocal sections of the society. Several approaches were made by institutions in the past such as 'change the curriculum', 'get brighter students', 'recruit new Ph.D's from American and/or European graduate schools', 'reduce the student/faculty ratio', etc. However, these measures, in isolation, fell short of meeting the challenges. Consequently, the faculty members of the College of Nursing, Yonsei University undertook a project 'Educational Development Society' in 1973 in order to bring about improvements in the professional faculty in a comprehensive manner. The general objective of the project is to improve instructional and organizational effectiveness in educating undergraduate and graduate students enrolled in the college. For this purpose, specific objectives have been formulated regarding instructional development, personal development and curriculum development. The project is designed to serve faculty members, instructional/research assistants and supervisors of practical work. The basic strategy is the 'training strategy' based on the assumption that change occurs primarily by giving people skills not only in the performance of the specific task but also in the accomplishment of the change itself.

Malaysia is another country which has made an interesting experiment in this regard through the establishment of a Teaching-Learning Advisory Unit (TLAU) in 1980 (Ahmat 1982). The objectives are: (i) to assist academic staff to understand more fully the teaching-learning process, and thus enable them to improve the effectiveness of their teaching and the students' learning; (ii) to offer information, consultancy and advisory services to the academic staff which aim at assisting them in overcoming teaching-learning problems, and in developing a more systematic approach to teaching and learning, (iii) to encourage academic staff to try different methods

of teaching and presentation of teaching-learning materials suited to the needs of the university, (iv) to assist academic staff in acquiring the proper techniques of curriculum design and development, (v) to assist students in acquiring the proper and effective study techniques; and (vi) to encourage, assist and conduct research into teaching-learning effectiveness.

The Unit with the help of its own core staff and in collaboration with the Educational Technology Unit organizes systematic activities in a number of areas such as student academic counselling, staff development workshops, teaching-learning materials development, evaluation, curriculum development and research. Professional development activities are also organized from time to time, viz. informal consultation, residential workshops, 'information by post, micro-teaching and mock interviews. During 1981, 134 out of 417 academic staff in the Science University of Malaysia (i.e. 32%) participated in different professional development activities.

Methods of evaluation

It is generally recognized that teaching, learning and evaluation constitute a unity of functions; each one of these processes provides the necessary feedback for other related functions. If examination is considered as an end in itself and not an integral part of the teaching-learning process, its impact on the syllabi, techniques of teaching, selection of courses and methods of study, etc. can become positively deleterious, as in the conditions existing in a number of universities in the region. It is, therefore, imperative that examination is viewed in its proper perspective as contributing to the educational objectives formulated by universities at different levels of education.

The countries of the region have addressed themselves to specific measures of examination reforms and more particularly the need to develop continuous assessment of students and to introduce flexibility and interdisciplinarity through a system of credits and unit courses.

A few examples are given below.

A radical reform measure taken by institutions in Australia is the progressive abolition of external examinations and subsequent diversification and broadening of the curriculum. Matriculation standard is judged on the basis of success in a senior public examination or teacher assessment and/or internal examinations.

As already stated, universities in Japan have introduced a system of credits and permitted the transfer of academic credits in order to encourage student mobility among junior colleges and universities.

The USSR has evolved its own peculiar system of examinations which has been in vogue for a number of years--that of oral examinations in a large number of subjects/ papers. There may be some written tests in subjects like English language, Russian

language and literature, philosophy, etc., in which expression, style, comprehension and the critical faculty have to be tested, but in the faculties of engineering, social sciences and sciences, the examination is generally oral through the ticket system and is conducted by a panel of professors in the subject concerned. The oral examination or viva-voce is of about 30 minutes duration and the written tests of about two hours during which the candidate has to answer two to three questions. No candidate is allowed to appear at the examination held at the end of each semester course unless he has completed home assignments, laboratory and practical work and periodical tests. There are two kinds of examination during term time, one in respect of home assignments and laboratory and practical work which the student has to complete satisfactorily and for which no grading is done. The other is related to an evaluation of the control papers in which the candidates are graded on a five-point scale according to their performance. The grades earned by a student in the control papers are taken into consideration in the award of the final grade on the basis of oral-cum-written examination. The student is required to choose a ticket containing three to four questions and has to answer questions pertaining to the ticket as well as some supplementary questions. There is no fixed schedule for the semester examination and the student is free to declare any time after completing the term work and sessional tests that he is ready to take the examination. However, a majority of students take the examination at the end of the semester course, the only exception being some very gifted students.

Universities in Pakistan (Kalim, 1978) have introduced a system of continuous internal assessment which involves a weekly written assignment, group discussion, monthly written tests and a comprehensive examination at the end of the year. Teachers evolve the plan of evaluation after determining the standard for judging student performance and the assignments and scripts are discussed with students.

In India, the main emphasis is on the following aspects of examination reforms: (i) continuous sessional evaluation as a supplement to the present final examination, (ii) the development of question banks in order to eliminate some of the shortcomings of setting examination papers and as a means for revision and modernization of courses of study, (iii) introduction of a seven-point grade system instead of the present marking system on a 101-point scale in order to increase reliability and comparability among different subjects and (iv) introduction of the semester system in order to have greater flexibility. The above reform measures have been introduced by a number of universities but it is now felt that a stage has been reached when each and every university in the country should implement what is regarded as the minimum examination reform programme. This, it is visualized, would include the following measures: (i) the syllabus in each paper should be demarcated into well-defined units/areas of content along with a topic-wise breakdown. (ii) Examiners should be free to repeat questions set in previous examinations. This is necessary in order to ensure that students do not leave out important portions of the syllabus. Instructions to paper setters are to be amended accordingly. (iii) There is often a very wide choice given to students for answering questions, say 5 out of 10. Such overall choice restricts the area of knowledge with which a student can pass an examination and is therefore undesirable. If there is choice, it may be provided by alternate questions in each unit of the syllabus. (iv) No examination should be held without fulfilling the requirements of a minimum number of lectures/tutorials/laboratory sessions, etc. which should be clearly laid down by the university.

In Bangladesh, the government decided in the National Economic Council meeting in August 1980 to introduce and improve the semester/course system in all the universities. It has since been agreed that there should be a gradual and steady transition from the existing to the new system and the universities should have the freedom to adapt the system to suit local conditions (UGC 1981). Nepal has also experimented with semestrization but the view is that the number of course units

should be strictly limited to keep them manageable within the time schedule. The Tribhuvan University, Kathmandu (being the only University in Nepal) has also developed question banks in a number of disciplines (Education and Development 1978).

Distance learning

An important innovation which has evoked considerable enthusiasm in recent years as well as open hostility from those who believe in status quo ante, is the institution of correspondence courses supplemented by study centres, student guidance, personal contact programmes, etc. This marks a radical departure from the accepted pattern of class-room instruction and a number of phrases like part-time and own-time education, correspondence courses, postal tuition and more recently 'distance learning' have been used to describe this experiment. This method of non-formal education is being tried out by a large number of universities in India, China, Japan, Sri Lanka, Malaysia, Philippines, Burma, Australia, New Zealand, Fiji and Papua New Guinea.

The underlying objective of distance learning is to provide a new stream of education to enable a large number of persons with necessary aptitude to acquire further knowledge and improve their professional competence. Correspondence courses are intended to cater to (i) students who had to discontinue their formal education owing to pecuniary and other circumstances, (ii) students in geographically remote areas as in the Philippines which has more than 7,000 islands, (iii) students who had to discontinue education because of lack of aptitude and motivation but who may later on become motivated, (iv) students who cannot find a seat or do not wish to join a regular college or university department, although they have the necessary qualifications to pursue higher education, and (v) individuals who look upon education as a lifetime activity and may either like to refresh their knowledge in an existing discipline or to acquire knowlege in a new area. Some universities like the Massey University in New Zealand use the correspondence course technique for students in the developing countries.

The forerunner in distance education is the USSR, which instituted correspondence courses on scientific lines as far back as in 1917 immediately after the October Revolution and the decree to ensure education for all. Experts in different fields met and prepared a series of written instructional materials for the benefit and guidance of adult literacy volunteers who constituted the army of peoples teachers. The first Soviet Minister of Education--N.K. Krupskaya--herself edited a number of books like School at Home, Peoples University, Workers Faculty at Home, Educate Yourself, etc. Through the organization of evening and correspondence courses throughout the length and breadth of the country, the Soviet Government has provided an opportunity to all workers--skilled and unskilled--to improve their educational qualifications and attainments. While education is free to the highest level and textbooks are within the purchasing power of every student, correspondence course students get a total of seven month's additional paid leave over five to six years of their studies for attending examination sessions and preparing and defending their diploma projects. Besides, many branches of the institutes like those of the All Union Polytechnic at Moscow are located directly within the premises of plants and factories.

The system of evening and correspondence courses in the USSR has a wide range; such courses being available in the humanities, social sciences, natural sciences, engineering, technology, agriculture, medicine, teacher training, library science, commerce, law, etc. Correspondence or external students receive instruction by a variety of methods and techniques. They are attached to particular centres and the programmes of study include participation in special courses and seminars, often held at universities and other institutions of higher education during vacation

periods. Universities and other institutions of higher education have special faculties or departments for correspondence students, and there are also some institutions devoted entirely to correspondence courses.

As in 1976, of the 852 higher education establishments, there were 22 independent institutes for evening and extramural courses with a wide network of branches throughout the country and 1,028 faculties and departments for evening and extramural courses attached to full-time higher education establishments. There were about 2,200,000 students enrolled in extramural and evening courses, representing approximately 45 per cent of the total enrolment in higher education (Unesco, 1976c).

In Japan, the Hosei and Keio Universities were the first to offer correspondence courses in 1947. The first junior college to offer correspondence courses was Nusashino Art Junior College in 1951. The nature and position of university correspondence courses may be summarized as follows:

(i) University correspondence courses are regular courses within the framework of university education and the standard is expected to be the same as in full-time courses.

(ii) Correspondence courses are established as being parallel to the full-time courses within the parent university.

(iii) The educational media used for the purpose include correspondence lessons, presentations of assignments and their grading, student guidance, radio and television broadcasting, and tutorials during summer time or evening.

(iv) Correspondence courses enable students to offer whole or a part of the university course, irrespective of admission qualifications.

(v) With the revision of the University Correspondence Education Standards in May 1975, correspondence courses are now available in respect of graduate schools as well as science and engineering faculties.

Correspondence courses enrol students in regular courses leading to a degree, as well as other courses such as Senkoka: for post-graduate level specialized study, special enrolments for students who do not possess the minimum entrance qualifications; they do not receive a degree on completing the course, auditors: these relate to subjects/credits necessary to qualify for a teaching certificate, and single-subject courses. 83.1 per cent of correspondence students are enrolled in regular courses and 16.9 per cent in other courses (University Correspondence, 1978). In 1978, 12 universities and 9 junior colleges offered correspondence courses.

The off-campus academic programme of the Science University of Malaysia instituted in 1977 represents the core of Malaysia's effort in distance education (Ahmat, 1982). When the programme was first launched, only two schools viz. the School of Humanities and the School of Comparative Social Sciences took part in the programme. In 1973, the School of Physics and Mathematics and in 1974, the School of Chemical Sciences and the School of Biological Sciences joined the programme. The other teaching department for the off-campus students is the language unit which offers courses in Bahasa Malaysia and some optional courses in linguistics. The courses are organized on the following principles:

(i) courses offered are essentially the same as those offered to full-time students;

(ii) course structures in each discipline are kept as far as possible the same;

(iii) staff offering courses for the off-campus programme are also those who offer the same courses on-campus;

(iv) adequate time is provided for off-campus students to digest learning materials;

(v) direct contact between staff and students is provided in the form of staff visits to regional centres, the annual three-week intensive course, and the incorporation of a one-year full-time component in the degree programme structure; and

(vi) examination papers for off-campus students are the same as those set for on-campus students.

Correspondence texts form the main part, supplemented by a three-week compulsory intensive course, week-end tutorials and practical work at regional centres, library services and radio broadcasting.

No account of the 'success stories' of distance teaching would be complete without a reference to the off-campus training programme in engineering and technology undertaken by Australia for persons in the South Pacific region who are engaged in, or seeking employment in, engineering related areas. The relevant details of the project are so exciting that these are reproduced below from the Country Statement of Australia presented to the first meeting of the Consortium on Innovation in Higher Education, convened by the Unesco Regional Office, jointly with Sukhothai Thammathirat Open University of Thailand, Bangkok, 31 August-7 September 1982.

The project is a co-operative venture between the University of the South Pacific[3] and the Darling Downs Institute of Advanced Education. The co-ordination of the project is the responsibility of the Director of Extension Services at the University and the Head of the Pacific Education and Training Centre at the Institute. The course was initially offered to students in Vanuatu, Tonga and Fiji. Students were required to have (a) trade training, or (b) adequate work experience, or (c) qualifications for entry into the University of the South Pacific.

Printed materials include study books, textbooks, study charts and library books. The study books prepared by the teaching staff provide course structures, objectives, learning materials and assignment details. While the printed materials predominate, they are supplemented by other materials. Video tapes are used extensively and the tapes are prepared and located in study centres and in the central on-campus library from which they may be borrowed. In some courses experimental kits have been developed and are issued with the study materials. Others, mainly electronic kits, are stored in study centres or are available from the central library. Audio tapes are part of the materials for most courses while filmstrips, slides and charts are other means of supplementing the printed material. While it is physically impossible for the lecturing staff to conduct on-the-spot tutorial programmes because of the distances involved, technology in the form of the loud-speaking telephone has provided an effective alternative. The telephone connections to the South Pacific regions are through a ground station in Suva and then via satellite to Vanuatu and Tonga. The Institute is now building its own transmitting equipment which will enable it to communicate directly with the satellite.

Distance teaching has taken another route--that of the open university which at one time was considered to be a soporific cliche and even a pipe-dream. It has now come into being, almost with a bang, and is dotting the entire region from the

Free University of Iran to Allama Iqbal Open University in Pakistan, University of the Air in Japan, People's Universities in the USSR and Open Universities in India, Sri Lanka, Thailand, Republic of Korea and China. The establishment of these universities is a recognition of the fact that education is no longer synonymous with schooling. The labels without which people could not enter the university even if they had the necessary motivation and maturity have vanished in thin air.

China established open universities on radio and television in Beijing, Shanghai and Shenyang and other states as far back as in 1960. The relevant extracts from a case study (Wang) are reproduced below:

The Open University of Beijing was set up in 1960, offering single courses in science and Chinese. Most courses lasted four years, but physics had a five-year course. The aim then was to provide workers with an opportunity of engaging in advanced studies during their spare time. Every day the course took them half an hour off their working day. The university also developed teaching materials for the television courses. From 1960 to 1966, the Beijing Open University on Radio and Television had 8,000 graduates and 50,000 students who finished one single course.

In 1978, the Central Broadcasting and Television University was established in Beijing. In addition, open universities on radio and television were set up by 28 provinces/municipalities directly under the Central Government and autonomous regions in their capital cities such as Nanjing, Kunming and so on, and 498 branch universities (working centres) were set up at prefectural and municipal levels.

The open universities have 9,500 full-time and 14,000 part-time members on the teaching staff. The total number of students formally enrolled in 1979 and 1980 reached 437,000 and in 1982 another 220,000 were enrolled. To date, 80,000 students have graduated after finishing two or three-year courses in science and engineering and 180,000 others have finished single subjects. The present total enrolment is over 397,000. This does not include the large number of students who are not formally enrolled but are following the courses by radio and television on their own.

The present enrolments of the open universities on radio and television consist mainly of workers who make up 50 per cent of the total, and teachers who make up 30 per cent of the total. The students fall into two categories: regular students who are admitted after passing the entrance examinations and who are formally registered on the school roll and put into classes; and those who study the courses of their own without taking the entrance examinations. Although not formally registered on the school roll, the latter can apply to sit for the final examinations, and if they pass the examination they are also given a diploma or a certificate. The regular students are further divided into two kinds: full-time students who take full courses and spare-time students who only take a single subject.

So far as specialities and curriculum are concerned, open universities on radio and television are still in an experimental stage. Between 1979 and 1981, the Central Broadcasting and Television University offered 17 courses for mechanical engineering and electrical engineering, covering both basic theory and foundation subjects. Beginning from 1982, three new courses were added for the arts. Local open universities on radio and television have had courses for various specialities in accordance with local needs.

The methods of instruction include written materials, TV and radio programmes. Different means of instruction are used for different specialities. For example, science and engineering specialities use more TV courses than arts specialities, while the latter use more radio courses. In relation to the time schedule, the

proportion of lectures and self-study is 1:2. Some open universities also have physical training classes.

Adult education

The education of adults outside the formal schooling system passes under different labels in different parts of the region--such as adult education, continuing education, lifelong education, non-formal education and extension programmes. It is, however, well understood that the concept of adult education is a logical extension of the functions of the university to the immediate neighbourhood and the community at large. The universities no longer function in the vacuum of 'intellectual abstractions' but have to gear themselves to the 'living context' of the reality around them.

The Fourth Regional Conference of Ministers of Education and those Responsible for Economic Planning in Asia and Oceania held at Colombo in July-August 1978, recommended the need for designing programmes for involvement of the community with educational efforts in both the formal and non-formal systems and also suggested that Unesco should extend its support to the Member States in developing such programmes through studies, research projects, exchange of experiences and visits.

The scope of adult education is vast and varied and more so in the developing countries where large sections of the community have perforce to remain outside the university system. This probably explains why a number of countries in the region (e.g. Pakistan, India, Malaysia, Viet Nam, Philippines, Australia, China and Japan) have launched upon adult education programmes for various target groups. Some of these experiments are described below:

The Allama Iqbal Open University at Islamabad in Pakistan in collaboration with the Asia Foundation has started a project to give learners functional education, functional literacy and skill training (Unesco Bulletin 1982). The project covers men, women and youths aged 15 and above in 20 villages. The materials developed for the project include motivational materials, utilizing the techniques of line, drawing, Koranic verses, dialogues and questions; instructional cards for teachers and reading materials. The university has also been preparing a similar project on a large scale to be called the Functional Education Project for Rural Areas (FEPRA) in a broad area of 200 villages with the collaboration of various other institutions and agencies.

The Republic of Korea established the Korean Junior College of the Air and Correspondence in 1972 as a two-year junior college attached to Seoul National University (Mc Ginn 1980). The aim of the college is to enhance the educational level of the Korean people by providing new opportunities for higher education to youth and adults who are not in a position to go to a regular college or university owing to pecuniary circumstances. At present, the college consists of five major departments with an average annual intake of 12,000, viz. home economics--2,000; agriculture--2,000; elementary education--2,000; business management--3,000; and public administration--3,000 (Im 1978).

The programme of adult education in India has three components viz. (i) adult education (with functional literacy as an essential component), (ii) community extension service and (iii) educational extension. As on 31 March 1982, the programme was being implemented by 68 universities and 705 colleges through 8,790 centres.

One of the important agencies for the implementation and co-ordination of the programme is the state/regional centre. State resource centres have been established at Osmania University, Kashmir University, Gujarat Vidyapith, Ahmedabad and Jamia

Millia Islamia, New Delhi. A regional resource centre has also been established at the Punjab University to cater to the states of Punjab, Haryana and Himachal Pradesh. A resource unit for Rayalaseema area exists at the Sri Venkateswara University, Tirupati.

India also has a programme of continuing education; the term is used for updating the knowledge, skills and abilities of various occupational groups. The objective of the programme is to enable individuals and groups to fill the gaps in their intellectual equipment, professional and technical competence and understand contemporary issues but the emphasis has recently shifted to the needs of the less privileged and underprivileged sections like factory workers, slum-dwellers, fishermen, etc. Fifteen universities and two institutions deemed to be universities have been participating in these programmes.

An important goal of the adult education programme in the Socialist Republic of Viet Nam is to develop the all-around personality of the worker and to promote production and economic development. Nearly 90 per cent of the illiterate working people have become literate through programmes of adult education; seven provinces have achieved universal primary education with a population of 10 million. 1.5 million people are enrolled in on-the-job and full-time courses in schools and classes for adult learners. Adult education programmes have also helped production by equipping the working people with scientific and technological knowledge. The Vietnamese peasants have now started handling improved and mechanized implements instead of simple farm-tools. Adult education also has had direct effects on the people's way of life and attitudes (Son 1982).

Universities in Malaysia attempt to discharge their obligation to the community by: (i) providing facilities for seminars and public lectures organized by professional and learned bodies; (ii) publishing books, journals and texts of inaugural lectures and other original contributions to knowledge; (iii) holding exhibitions of projects or work done by staff and students; (iv) staging cultural performances or providing facilities for such performances; and (v) organizing film festivals for the public with the co-operation of accredited diplomatic missions (Adult Education, 1982).

In Australia, there are a number of universities, institutes and colleges of advanced education involved in distance teaching as well as community education. For example, the Centre for Applied Mathematical Modelling (CAMM) at the Chisholm Institute of Technology is engaged in significant applied research and consultancy projects with business, industry and government agencies. Current activities include mathematical modelling of environmental systems, the statistical design, analysis and review of environmental investigations, design and presentation of short courses and training courses. It is the function of CAMM to control, co-ordinate and manage, at a departmental level, these activities and identify clearly to the community the expertise available within the department. Current areas of expertise include: air quality modelling, water quality modelling, tribology, data collection and analysis, finite element methods, forecasting, network methods, linear programming and decision analysis (Innovative Developments 1982).

The Mongolian People's Republic has developed the system of educating adults without disrupting their occupational work and to train specialists through correspondence schools and night classes and provide refresher courses for all specialists (Education in Mongolia, 1971).

In the Philippines, as stated in its country statement, the University of the East offers community oriented practical programmes in a number of professional subjects. One of these programmes, for example, is the community medicine for clinical clerkship

offered by the RMMMC College of the University, which has been started in order to broaden the scope of traditional medical education. The clinical clerkship in Community Medicine is one and a half months in duration. Students are assigned for three weeks in Limay, Bataan and one and a half weeks each in the other centres. The students are assigned more or less equally to the project health centre, domicillary services, and field work to provide them with first-hand experience.

In Japan, with the passage of a new law, the Higher Vocational Schools Law, some of the more qualified non-degree post-secondary schools (they are called 'senmongakko' in place of what was once known as 'miscellaneous schools' or kakushugakko) have been given legal status and included in the category of higher education. Earlier, there were more than 8,000 such institutions providing vocational and technical training to more than one million students, but these were neglected, enjoying neither public support nor legal recognition (Innovative Developments 1982).

USSR has established a number of people's universities in different republics as part of the continuing education of working people. These universities are open to all--as there is no age-bar or insistence on secondary school qualifications. The universities function within various ministries (2.5 million students), the Znaniya Society (2.5 million students) the ministries of public education (2.9 million students), health protection (one million students), culture (one million students) and agriculture (585,000 students). Besides providing basic skills, these universities also provide opportunities to students to broaden their outlook through the faculties of music, art, literature and foreign languages. The universities also run programmes for the training of lecturers. At present more than 40,000 people's universities specializing in different branches of science and technology are functioning at enterprises, on collective and state farms, in cultural institutions and research establishments. There are also radio and television people's universities with audiences of many millions (Education: Soviet Union).

Work-link of higher education

It is generally recognized that work/field/practical experience should be an integral part of the teaching-learning process at all levels of education. There is also a general consensus that work experience should not be interpreted in the narrow sense of actual production of material and tangible goods or the provision of social services but in its wider connotation as encompassing all those activities that lead to application of knowledge to given or new situations. The main objective is to reduce the existing gap between the 'world of learning' and the 'world of work'.

In the context of forging links between education and socially useful work, the Fourth Regional Conference of Ministers of Education and those Responsible for Economic Planning in Asia and Oceania held at Colombo in July-August 1978 urged the Member States to develop various forms of student participation in socially useful work with due regard to existing conditions and the demands of socio-economic progress. The Conference also emphasized the need to extend and improve the system of technical, vocational and out-of-school education for young people based on a broad general education.

There are numerous examples of linking higher education with work experience in universities of the region. In India, this is being done by reorganizing courses at the first degree level. The scheme has two important aspects viz. (i) to make the courses more relevant to the rural environment and to the developmental needs of the community and (ii) to link education with work/field/practical experience and productivity. The key concept underlying this exercise is to remodel the existing conventional three subject courses at the first degree level by courses comprising two of the existing subjects together with a third subject being oriented towards field/

practical work or having a bearing and direct relevance to the local/regional needs and requirements.

The combination of application-oriented subjects with core courses is determined by the universities; the colleges concerned generally select the subjects keeping in view the local and regional needs and industries in the region. The contents of courses are carefully worked out by experts in consultation with industrial undertakings and other establishments in the region. The courses are intended to equip the student with such skills and techniques as would enable him to find suitable employment with the local industries or start his own enterprise after graduation.

Another example of work experience for the student and the out-reach of education to home and community is the rural development project undertaken by the Science Education Centre at the University of the Philippines (Maddock 1981). The Centre is developing curriculum materials for health, nutrition, family planning, agro-technology and environmental sciences. Many of these course units are produced in the form of simple comic books in the Filipino language and are placed in the village reading rooms. The programme is organized in collaboration with the local leaders and through a series of community seminars.

The University of the Philippines has also undertaken the Institute of Health Programme in collaboration with the Ministry of Local Government and Community Development and the Ministry of Health. The aim of the IHS experiment is to train health workers for service in the rural areas. The main feature of the programme, as detailed in the Country Statement of Philippines, is a step-ladder curriculum which can produce barangay health workers or the equivalent of the paramedic in only 11 weeks, midwives in 1-1/2 years; community health nurses in 2-1/2 years; and, graduates of the B.S. in Community Health in the third year of this curriculum. Scholars of the local barangays are required to go on 'service leaves' and apply their skills in their own locality as rural health workers.

Pakistan has launched upon pilot projects in two of its provinces with general universities and agriculture/engineering universities collaborating to study the rural areas. Groups of students are sent to these areas: engineering students study and develop appropriate technology; students of agriculture, the cropping pattern and the conditions of livestock; and students of economics, home economics, sociology and political science, the socio-economic and political patterns in the area. A centre has also been set up for the Application of Science and Technology for Rural Areas (CASTRA). This would operate in a number of areas such as optimum utilization of water and energy resources, improvements in agricultural and other rural machinery and implements rural economics, small-scale industries based on chemistry, physics, agriculture, etc.

In India, a unique experiment was started in 1975 when a small group of persons from the Indian Institute of Management, Ahmedabad planned to experiment with the integration of rural development and education by using learning as the basis for development in a backward block of about 200 villages with a population of approximately 80,000 (Mathai 1977). The experimenters assumed that all activities should be based on local physical resources and the ideas should be generated by the villagers themselves. The activities should also be decentralized in order to involve the maximum number of people and to keep the capital intensity of each activity as low as possible. The starting point for people's participation was to undertake some economic activity and then involve them in the process of education and development of skills and abilities. This was necessary to make the otherwise lukewarm and indifferent villagers responsive to the idea of functional education and to involve them in the learning process. All kinds of learning spaces were used from a villager's hut to a well or tanning pit. The learning package for each village was

different depending on the particular economic activity to be stressed. In fine, the experiment underlined the need for self-reliance, mutuality, planning at the micro-level and preparedness to pass through a long period of gestation.

Some universities and colleges in India have also introduced full-fledged courses in rural development. For example, the Gujarat Vidyapeeth, Ahmedabad offers a three-year B.A. course in rural service. The first year of the course comprises subjects like Indian cultural heritage, Gandhian thought and programmes of social reconstruction, rural society, rural administration, rural planning, agriculture, animal husbandry and appropriate technology. The second year of the course is devoted to applied subjects like social research, folk communication methods, tribal welfare, nature cure, village sanitation, etc. The third year provides for placements for 8 to 9 months in a village or block for actual field work under the supervision of the rural agencies concerned. The Gandhigram Rural Institute, Madurai offers a two-year M.A. in rural development, a two-year M.A. in rural economics and extension education and a two-year M.A. in rural sociology and Panchayati Raj. The B.A. students are also required to submit a project report on a rural problem in partial fulfilment of their course requirement.

In Thailand, the Kasetsart, Thammasat and Mahidol Universities have formed inter-university teams to test the methodology of development and bring about improvement in rural conditions in the Mekong River Basin (Education, Unesco 1980).

In the Socialist Republic of Viet Nam, special attention is paid to the relation between theory and practice; and the studied plan and curriculum are so designed that practice plays an important role. Many professional secondary schools combine education with activities thus ensuring the balanced development of the students' personality as also to use their technical potentiality for the benefit of the society (Hong 1980).

In the Democratic People's Republic of Korea, a number of factory colleges have been set up where the worker can work and study simultaneously. It has been found from experience that the student workers learn science and its techniques easily in view of their experience in the line of production and thus perform the 'dual function of production and training' by combining 'theory with practice and education with productive level' (Djin 1978).

In China, ideology and learning are closely linked with actual production. Teaching, research and production go hand in hand and universities not only have permanent relations with factories and communes but also have their own factories and farms. Universities offering courses in liberal arts use the society as a workshop. Social science students are required to carry out surveys in factories and villages, attend workers' schools and develop an intimate understanding about society and the processes of social development (Yong 1975).

An important trend in bringing higher education closer to the needs and aspirations of the community is the symbolic relationship between studies and national service being developed in a number of countries in the region, e.g. China, Democratic People's Republic of Korea, India, Indonesia, Malaysia, Mongolia, Nepal, Philippines, USSR and Viet Nam. The rationale of the scheme is in developing the potentiality of educated youth to make significant contributions to national development and the view that their mobilization if not conscription is a means for accelerating the pace of economic development. It is also felt that by diverting the energies of youth to constructive channels, it is possible to counter the fissiparous tendencies which may otherwise engulf many developing societies passing through a stage of transition.

A fine example of involving students in developmental activities is the national development service programme introduced by the Tribhuvan University at Kathmandu in Nepal. The programme is designed to expose the educated youth to the realities of rural life in Nepal and also to serve as change-agents in the integrated development of the country. All students are required to spend one academic year working in village level development work as part of their education after a month's preparatory training. Some of the activities included in the programme are: (i) teaching at school (a priority job); (ii) adult education or literacy campaign; (iii) health education (including family welfare); (iv) afforestation or conservation of forests; (v) drinking water supply; (vi) construction of small wooden culverts, rural tracks and trails, and similar construction projects for libraries or additional wings to the school buildings, pit latrines, etc.; and (vii) agriculture extension work; with demonstration of a kitchen garden being compulsory.

In India, all the universities and colleges are implementing the national service scheme, which had been introduced in 1969-1970 with a view to inculcating a sense of social commitment and dignity of labour amongst the students and for an all-around development of their personality. Under this programme, university and college students undertake creative and constructive social activities like flood relief, adult education, etc. on a purely voluntary basis. The present coverage is estimated to be 400,000 students. A working group set up by the government of India to review the scheme has expressed the view that the performance under the scheme has made such an impact that it would be desirable to strengthen the programme and expand it further.

Indonesia has been experimenting since 1973 with a programme called Kuliah Kherja Nyata (KKN) which means 'learning through real work'. (Guidelines, 1978). The aims of KKN are: (i) to enable the institutions of higher learning to produce graduates who will promote development through firsthand experience of the complex problems faced by the community; (ii) to enable students to formulate practical and interdisciplinary ways of tackling social problems; (iii) to bring the institutions of higher learning closer to the community and enable them to adapt themselves to the demands of development; and (iv) to help the government to accelerate the development process and to form cadres in the villages for the purpose. The KKN working unit has a group of several villages in a subdistrict. A maximum of two students from different faculties are placed in any one village. They are required to carry out a survey of the identified village and draw up a plan of work. There are diverse activities which include repair and construction of roads, bridges, fish ponds, irrigation, drinking water supply, construction of schools, health clinics and buildings for religious services, control of rice pests, introduction of improved varieties of crops suitable for local conditions, new cash crops, reforestation, poultry-keeping, formation of co-operatives, improvement of marketing, etc. The programmes also include development education, improvement of village libraries, conserving and developing local culture, religion, health, family planning, environmental sanitation, etc. All government and some private institutions of higher education are now involved in KKN; and the programmes and its methods are being continuously reviewed and improved.

In Malaysia, education at the post-secondary level with work-based orientation is provided at the two polytechnics and at the teacher training colleges (which train teachers for vocational and technical schools). Non-formal education programmes designed for the development of productive skills are carried out by various government agencies. In the Philippines, students are required to render at least 120 hours of community service.

Institutions of higher education have taken steps to establish work-links in a number of other countries also viz. Burma, Bangladesh, China, Iran, Republic of Korea and Thailand (Indaratna 1982).

Research and development

Research has always been regarded as basic to the concept of a university[4] but until a few years ago, it was assumed that the university should basically concern itself with the fundamental aspects of research only. The application of research to real problems of the society was considered to be of secondary importance and the business of government and industry. This assumption has been seriously questioned in recent years and the view is now held that both fundamental and applied research come within the purview of universities. In fact, experience in recent years has clearly shown that pure and applied research flourish best in combination and each one of them is likely to become sterile, if isolated. Conceptually, applied research is an outcome of fundamental research; and a considerable part of what appears as pure research is indeed a consideration of the practical problems that arise in the course of development. The gap between the generation of a new idea and its application has narrowed down to such an extent in this age of communication that distinctions between pure and applied research have become meaningless. It is but appropriate that the links between the two ends of research are strengthened and the academics accept this position without demur. It is the basic function of a university to be concerned with the fundamental ends of research and also to get involved in the problems of the society by taking up problems in areas which may lead to applications as also in areas of R & D importance. In fact, it is the application of reseach which has become more important.

The role of universities in the developing countries is best summarized by the International Association of Universities (1979): 'There is broad agreement that universities in developing countries should try to produce manpower not only at the highest level but also at critical subdegree levels necessary for development; that their research programmes should emphasize not so much the production of new knowledge as the application of existing knowledge to local problems, the substitution of local material in industrial processes and the resolution of other development-oriented local and national problems'.

A look at the experiments, models and practices in different countries of the region shows that research has to a great extent, become oriented towards development goals. In USSR, although the bulk of research is pursued in specialized research institutes, there is a mechanism for continuous feedback from the universities and the production sector. Within the structure of higher education, a new type of research organization has been set up for pooling of available resources and for bringing together scientists and specialists from different fields, institutions and enterprises. Presently, there exists a large network of such research units covering institutions and laboratories. Education-research-production associations have also been formed with the objective of intergrating the research efforts of various agencies. They also foster active collaboration between scientists and engineers, which in turn facilitates experimental testing of new designs, devices and samples and the identification of research problems.

In Japan, the masters' course is designed to develop competence and research through theory and practical application in a specialized subject. One-half, or one full year's experimental work on contemporary problems in science or engineering is a compulsory requirement for all students under the diploma thesis experiment introduced recently. Research grants from industries to educational institutions help to provide the necessary wherewithal within the universities.

The Department of Electrical Engineering in the National University of Singapore proposes to undertake joint projects aimed at improving the telecommunication services. The Applied Research Corporation is also directly with the university and utilizes the large pool of consultancy services which the university can offer to industry and the professions.

The People's Republic of China has adopted the 'Four Modernization Programmes' with emphasis on the need for training highly qualified and specialized manpower in a variety of areas. The focus is on interlinks between research and teaching and improvement of quality. Structural changes within universities are also contemplated to meet the emerging demand for properly trained management cadres. Internal management practices are also being streamlined. These include measures to bring about decentralization in the sphere of higher education systems in relation to industry and peoples' organizations (Policy discussions 1980).

In the Republic of Korea, policy-oriented researchers have been conducted in a number of areas, e.g. studies to find out ways for improving college curriculum and introducing innovations in teacher education, evaluation of experimental reforms undertaken by pilot institutions, problem-oriented study in social problems, viz. population education, national identity in a changing society and development-related research including the collection of base-line data and evaluative research (Educational Development 1975-1976/1976-1977).

In Viet Nam, schools of higher education regard it an integral part of their working to undertake research on specific scientific and technical problems, connected with different areas such as river-bed flow, medical assistance, construction of industrial structures, utilization of micro-organisms in food production and on planning and management of the national economy (Education, Unesco 1980).

Research is a comparatively recent phenomenon in universities in India and it is only in the past few years that the emphasis has shifted from individual excellence to development-oriented research. In fact, applied research has, by and large, been the prerogative of research/training organizations outside the university system such as the Atomic Energy Commission, the Tata Institute of Fundamental Research, Institutes of Technology, the Zoological, Botanical, Geological and Archaeological Surveys and National Laboratories of the Council of Scientific and Industrial Research. As compared to these research institutes, facilities in the universities by way of infrastructure and equipment are meagre. However, even within these constraints, universities have done well to undertake research in areas of crucial importance to the social and economic development of the country, viz. water resources development, solar and nuclear energy, ecosystem, mapping, rural development, population education, wildlife, environmental education, etc. They also collaborate with the national laboratories and other research organizations and provide consultancy to industrial enterprises and other sectors, e.g. agriculture. The agriculture universities, which were started on the pattern of land grant colleges in the United States, have assumed responsibility for applied as well as fundamental research. Such research is not limited to laboratories and experiment stations alone. The universities have undertaken extension programmes which ensure flow of information and the findings of research to the farmer at the grass-root level. While the universities have contributed their mite in changing the attitudes of the traditional farmers and in imparting the new seed-farm technology, the research staff of the university has also gained through an awareness of the actual problems of the farmer. The agriculture universities have indeed played the role of a catalyst in ushering in the 'green revolution' in the country.

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Notes

1. Iran has reorganized the educational system to provide for greater decentralization, the functions of the Centre being limited to overall supervision and control of policy, planning and resource allocation.

2. A seminar is intended to enable university and college teachers as also research workers to acquaint themselves with the latest developments in their respective fields of work. It also facilitates exchange of ideas with peers in the same or related fields. In the case of symposia, while the objective is the same as that for seminars, the programme is oriented towards exploration in teaching of a specific topic or related area which has become potentially significant for organizing and streamlining of curricular or research activities. The workshops are also programmes intended for augmenting professional competence of the teachers. These are conducted under the direction of competent faculty members who provide specialized short-term institutional programmes covering recent advances in selected areas or fields of special relevance. The institutes are for updating courses. They also provide opportunities to the participants to confer with resource personnel for obtaining their advice on matters like teaching aids, methods of presentation, project designing, planning of courses and other problems.

3. The University of the South Pacific was established on the recommendation of a Higher Education Mission set up by the Governments of the United Kingdom and New Zealand, and with the co-operation of the Government of Australia. The main campus of the University is in Suva, Fiji. The University serves the needs of Fiji, Vanuatu, the Kingdom of Tonga, Western Samoa, Kiribati, Tuvalu, Nauru, the Cook Islands, Tokelau and the Solomon Islands in Nuie.

4. China experimented with the system of having universities solely for teaching and research institutes for research. It has now moved away from this position and universities are combining teaching and research and placing considerable emphasis on scientific research (Ogden Suzanne; Higher Education in the People's Republic of China; New Directions in the 1980s, Higher Education, Vol. 11, No. 1, January 1982, p. 98).

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CHAPTER IV

Emerging Problems and Perspectives

The picture of higher education in the Asia and Pacific region that emerges from the preceding analysis of recent trends and attempts towards reorientation is one of many shades and facets. There has been a spectacular growth of enrolments at the level of higher education but this seems to have stabilized in many countries and even tapered off in a few others. Access to higher education has broadened with many universities throwing their doors open to persons from different age-groups and socio-economic backgrounds. The artificial barriers of time and distance, which often limit the teaching-learning activity to narrow confines, are also breaking down, albeit slowly and gradually.

On the seamy side, it appears that the expansion of enrolments beyond the absorptive capacity of the labour market and the unplanned proliferation of institutions of higher education have thrown the system out of gear in a few countries of the region. The tertiary level has registered relatively higher growth rates as compared to the primary and secondary stages. Consequently, the structure of education in a number of countries has become an inverted pyramid. Many universities have become lackadaisical and are merely doing certification; as if their job is confined to putting labels on commodities to make them marketable. In the wake of industrialization, jobs have lost much of their specificity and have become linked with paper qualifications in terms of the number of years spent at the school or college and, therefore, education is not pursued for its intrinsic value. There is such crass contempt for labour in some countries that even the professionally qualified people look for 'white collar' jobs. It is this attitude, which is partly responsible for migration to urban areas, concentration in the organized industrial sector and flight of skilled persons from the traditional enterprises. There is also a crisis of confidence between teachers and students and an erosion of values. Consequently, many campuses are in a state of turmoil.

In a manner of speaking, the picture of higher education is like the two sides of the coin. Developments that are envisaged in the next two or three decades and the demands that will be made on the system are not going to make the task of higher education easy or smooth. According to trends and projections of enrolment (Unesco, 1977), the total enrolment at the third-level in the Asia and Pacific region in 2000 A.D. will be a staggering figure of 40 million i.e. 60.8 per cent of the estimated world enrolment of 66 millions.[1] The increase from the 1980 level of 24 million students (estimated) will be of the order of 66.6 per cent. Within the region itself, South Asia with more than 13 million students in the stream of higher education will have the maximum concentration. Considering the magnitude of the problem and paucity of resources, what could be our strategy for development and the role of universities in the decades to come?

The role of universities

It is pertinent to refer to what Jawaharlal Nehru, the first Prime Minister of India, said on the role of the university as being symbolic of the aspirations of a nation which had just emerged as a free country in the comity of nations. Said Nehru 'A university stands for humanism, for reason, for the adventure of ideas and for the search of truth. It stands for the onward march of the human race towards even higher objectives. If the universities discharge their duty adequately, then it is well with the nation and the people' (Nehru 1947). The

statement implies that the essential role of the university and its approach is idealistic as well as utilitarian and it would be legitimate for the society to regard and accept the university as an instrument of national development.

The foregoing aims, it will be admitted, are already reflected, at least in a small measure, in the policy objectives of universities in the region as detailed in Chapter III. These are, in fact, applicable to all universities in the world. The question is whether universities in the region have a distinct character of their own or are they mere prototypes of Western models?

The fact that many universities in Asia are replicas of Western universities and do not have an ethos of their own is brought out in the following statement in the final report of the Fourth Regional Conference of Ministers of Education and those Responsible for Economic Planning in Asia and Oceania held at Colombo in July-August 1978: 'The pattern of the modern educational system in most Asian and Oceania countries had been greatly influenced by Western models. ... These models often do not suit the socio-economic conditions and development requirements of the societies concerned, or the preservation of their cultural identity'. (Unesco, 1978). A university is nothing more than an exotic plant if it has no roots in the history, philosophy and culture of the country of its location and if its teaching and research programmes, reading and reference materials, do not draw their examples from the local environment. It should be the aim of the university that every student going out of its portals takes with him an understanding of his cultural heritage, its achievements and shortcomings, its triumphs and travails. However, the transmission of knowledge, tradition and culture from one generation to another does not mean that the ideas and ideals of the past should not be interpreted in the light of modernity or that universities should encourage obscurantism. What it implies is that the cultural identities of the people should not be allowed to be submerged and each and every university student should know what he is heir to.

Universities in the region have a special responsibility to establish the necessary linkages between education and culture; after all Asia has been the cradle of ancient civilizations and cultures. It would be desirable to incorporate a considerable component of culture in university curricula in subjects like art, archaeology, history, social studies and architecture. Small unit courses or foundation courses in the history, culture and philosophy of the country concerned could possibly be made a compulsory requirement for all students. Universities would also do well to promote the study of the appropriate classical languages, extinct scripts, rare manuscripts, historical records, etc. University students and teachers should also be able to interact with institutions outside the university system which help in the conservation of culture such as museums, archives and national libraries.

The university has also to recognize the inherent truth that it cannot function in a vacuum; it must reflect the characteristics and aspirations of the society which supports it. That this has not happened to the desired extent is partly due to historical circumstances and the colonial legacy but mainly due to the inability of universities to adjust themselves to the new conditions and the irrelevance of the work that goes on in many universities in the developing countries of the region. Consequently, the student becomes progressively alienated from his surroundings and the basic problems of the society. In this connection, the following commentary on the African situation by Sir Eric Ashby seems to be highly relevant to the situation obtaining in contemporary Asia. 'For an African the impact of a university education is something inconceivable to a European. It separates him from his family and his village (though he will, with intense feeling and loyalty, return regularly to his home and accept what are often crushing family responsibilities). It obliges him to live in a Western way, whether he likes it or not. It stretches his nerve

Higher education and development

During the period following the Second World War and possibly as its by-product, there was an insatiable thirst and quest for education, modernization and accelerated economic development in different countries of the world. The war had established the superiority of technologically advanced countries and hence, with a view to catching up with the developed countries, the developing countries launched massive programmes for the training of highly skilled manpower in the scientific and technical fields. Human capital formation and physical capital formation came to be seen not only as 'complementary to each other, but mutually reinforcing'. Educational development became an important plank of economic planning on emotional as well as rational considerations.

On purely a priori grounds, education must lead to development provided it grows in response to the educational needs of the society and has the attributes of internal coherence, resilience and efficiency. One does not have to refer to the 'capital' theory of education which treated educational expenditure as 'investment in man' and the writings of economists who included education in national income accounting to explain 'residual' income in order to establish the point that there are inseparable links between education and development. It is possible to go along with the affirmation of the General Conference of Unesco (1978) that 'by the very complexity of the problems which it must help to solve, education must be conceived in an interdisciplinary context as a factor of multidimensional development of which man is both the end and the instrument'. The fact that education is an important and key factor in development has never been in doubt. The point of scepticism is whether there is a causality between education and development and a kind of 'seed-and-flower' relationship.

It is necessary to clarify the terms 'development' and 'education' from the conceptual point of view as these are often misinterpreted. In the past development was measured by the gross national product alone. It is now realized that the term is much more comprehensive and should include equitable distribution of income and assets, full employment, promotion of social welfare and enhancement of cultural satisfactions. Development is not just the physical output but the quality of life and more than anything else it is a continuing process of social and economic transformation. Similarly, at the other end of the spectrum, education should not be taken to mean so many colleges and schools and statistics about enrolment but the content that goes with it, the knowledge and skills that are imparted and the role that is discharged in relation to the social objectives. One has also to consider the gap between the perceived and actual functions of education and whether it has come to terms with the realities of life and the total environment.

In recent years, a number of studies have been made to investigate whether there exists a direct and significant relation between the growth of education and economic development from the statistical and quantitative point of view. These studies have usually come up with positive and significant correlations between the two. For example, in a study on education and economic growth in India, it was found that there was a positive correlation between per capita income at current prices and enrolments at the primary level (.85), secondary level (.94) and tertiary level (.96) (Coel, 1974). Three important hypotheses were also tested during the course of this study. First, the demand for education increases with the growth of per capita income, provided education yields higher returns as compared to alternative returns. Second, the demand for education becomes less elastic at higher levels of income. As a corollary of this, education in the less developed countries tends to increase at a rate faster than the growth of national

income. In the more developed countries, the rate of growth of education is lower and generally corresponds to the rate of growth of population. Third, if the demand for different levels of education is not found to be compatible with the private rates of return, the raison d'être could possibly lie in income inequalities.

The experience of a number of countries in the Asia and Pacific region during the last three decades indicates that the rate of growth of education was far more than the rate of economic growth. This was a logical necessity; otherwise the gulf between the developing and developed countries would have gone on widening. At the same time, these countries have learnt from experience that there may be limits to expansion imposed by the availability of budgetary resources and the capacity of the economy to absorb the trained manpower. An educated worker has to be paid higher wages, and if the rate of economic growth is sluggish, the society finds it difficult to pay higher wages to him. Another important fact that has to be borne in mind is that the share of labour force participating in agriculture is reduced considerably, when a country takes to industrialization. This places heavy demands on the job-potentiality of the urban-industrial complex. Consequently, there is decline in the relative wages of educated persons, unemployment, brain-drain and various otner symptoms of 'mismatch' between the out-turn of graduates and the demand for their skills and abilities.

The conclusion is inescapable that expansion of formal education is governed by a number of important conditions which inter alia include the per capita income of the country, the rate of economic growth and the distribution of incomes. It has been possible for education to grow at a rapid rate in countries with high per capita incomes or manifestly high rates of economic growth as in Australia, New Zealand and Japan or in countries with a more equitable distribution as in China and USSR. For other countries that may not be placed so favourably, there are milestones to be crossed.

One has also to reckon with the fact that many of the developing countries of the region might hesitate to plough in a significant portion of their funds on the development of higher education if persons trained at the highest level cannot be put to gainful employment. Manpower planning is an absolute desideratum for such countries. Unfortunately, our tools for making the necessary projections are primitive and it has not been possible even in developed countries to forecast manpower requirements with a fair degree of accuracy and precision. In so far as the developing countries in Asia are concerned, the data base in many of these is so fragile that manpower projections can go wide off the mark. These countries have, therefore, confined manpower forecasting generally to highly specialized fields like engineering and medicine as in the case of India.

It is also possible to analyse the rates of return in order to determine whether investment in education is yielding higher marginal social returns than marginal returns from other forms of social investment. This would help in allocating resources for different levels of education and also to adjust, as far as possible, the demand for education with the educational needs of the country. If in a particular country, (e.g. in India, Bangladesh, Indonesia and Malaysia), the private demand for education is high and the social returns inadequate, the strategy of development seems to be one of regulating expansion, especially if there is no shortage of educated manpower in the core sectors of the economy. In other countries, where the social returns from education are high and whose economies have already taken off the ground, the development of education could be further accelerated to meet the growing needs of different sectors of the economy. In the case of both groups of countries, it would be desirable for education to expand at a rate higher than the growth rate of population as well as national

income, if stagnation is to be avoided. Expansion should be so regulated that it places equal emphasis on quantitative as well as qualitative aspects of development. It has also to be borne in mind in the context of development that educational policy which has to comprehend personal and cultural development should not become totally subservient to manpower requirements. Employment is essentially based on specific economic and industrial ends but the demand for education arises from many sources other than the labour market.

Equality of opportunity

Traditionally, school and collegiate education has been elitist and esoteric in nature and it continues to be so in many seats of learning. Institutions of higher education came to be established in order to subserve some established order like the church, state, nobles or the landed aristocracy and it is not surprising that conservative opinion even today harps on differences in individual talent and argues that the concept of 'equality of opportunity' is not compatible with selectio ingeniorum. It was during the post-1945 period that higher education systems in countries of the Asia and Pacific region started opening up. Not only that discrimination against certain segments of the society on the basis of social origin, income or sex came to be frowned upon but attention was paid to positive measures to bring about democratization in higher education.

Article 26 of the Universal Declaration of Human Rights adopted by the United Nations in December 1948 states: 'Everyone has the right to education. Education shall be free, at least in the elementary and fundamental stages... Technical and professional education shall be made generally available and higher education shall be equally accessible to all on the basis of merit'.

Equality of access in respect of higher education, visualized in the Declaration of Human Rights, is the first necessary condition of 'equality of opportunity'; although it does not constitute a sufficient condition. A university closing its doors on a legal basis to students belonging to religious, racial or ethnic minorities or to the weaker sections of the society or on the basis of income, sex and rural-urban background has already become a thing of the past in so far as the Asia and Pacific region is concerned. Yet it cannot be claimed that the goal of egalitarianism in higher education has been achieved. For example, in an all-India study on the sociology of education, it was found that a majority of students in professional colleges come from families with white-collar professions. The data regarding students in professional courses according to the father's occupation revealed that the proportion of urban white-collar was 49 per cent, rural occupations 25 per cent, small trade and business 14 per cent, and manual jobs 4 per cent. In another study, King analysed the position in relation to the Indian Institute of Technology (IIT) students and found that there has been a progressive increase in the number of students belonging to higher income groups (Damle 1975). Similarly, in Thailand an analysis of successful applicants to university by (a) parental occupation and (b) region indicated that children of government officials and proprietors, predominantly from Bangkok, were the most successful university entrants as late as 1974 (Watson 1981). These statistics clearly show that the problem of equality of opportunity has much wider implications than a routine legal provision for equality of access.

A number of factors have a direct bearing on 'equality of opportunity', both as an ideal and a reality. First, considerable selection in terms of social origin or income takes place below the university level. The system of secondary education generally favours the privileged sections of the community and thus creates differences in eligibility for higher education.[2] Second, in the absence of positive

measures, education becomes more and more undemocratic as one moves up the ladder, generally due to what may be called the multiplier effect. Third, the medium of instruction at the university level in many countries of the region is different from the medium at the secondary level. This makes the switch-over from one stage to another difficult, specially for students belonging to the weaker sections. Such students are generally well up in the native language but not so proficient in the foreign language which is usually the medium at the university level. Fourth, students enter the stream of higher education from a system of secondary education, which maintains double standards. For example, in India, the better off students come from the prestigious public schools; while the common run of students is from the so-called government schools, where teaching-learning conditions leave much to be desired. Fifth, a student belonging to the upper strata of society has many advantages in pursuing the higher-level courses. His economic circumstances are happy so that he can pay fees, buy books, engage tutors and forgo earnings. Usually, he also has a generation of learning behind him, a congenial environment at home and in his neghbourhood and access to the media of mass communications. Sixth, and this is a very important factor in several countries of the region, the system of higher education including courses, curricula and reading materials is heavily weighted in favour of the higher income brackets or those from urban areas and sophisticated cultural backgrounds. Consequently, the drop-out rates among the weaker sections are much higher.

It is clear from the foregoing that the concept of 'equality of opportunity' acquires meaning and content only when it combines 'equality of access' with 'equality of condition'. Different strategies have been adopted by different countries in the region to tackle the problem with varying measures of success. Generally speaking, it may be stated that such efforts have been marked by greater vigour and enthusiasm in countries which were under colonial regimes and later emerged as independent nations.[3] Such countries found themselves face to face with an explosion of aspirations, with large sections of their community feeling that the moment had arrived when they could fulfil their 'tryst with destiny'. It was just not possible to deny them this opportunity either on political or moral grounds.

The response of universities and other institutions of higher education in the region to demands from different sections of the community and the push exerted by enrolments at the lower levels was to increase their intake capacity. There was an impressive growth in the number of institutions but more impressive was the growth in numbers. In a number of countries, the rate of growth was of the order of more than 10 per cent per annum in the fifties and sixties. In spite of massive efforts made in this regard, it is only in a few countries of the region that higher education has acquired a mass character. On the other hand, the fact remains that the system does not become egalitarian by a mere broadening of access. There is a critical point at which the democratization of any particular level of education becomes effective and this point varies from one country to another. One way of looking at it is with reference to the parental income of students enrolled in higher education and to compare this with the average household income in the country. If the ratio between the two shifts, say from 5:1 to 4:1, this would mean that the benefits of education have started accruing more to the lower income groups. It is only when the ratio is 1:1 that education becomes truly democratic in regard to the composition of the student population. It is also possible to look at the problem of inequality in education with the help of the Lorenz curve or the co-efficient of concentration of incomes in the country. If in a country as a whole, 30 per cent of the households are above the average household income and 70 per cent below it, a particular level of education will become democratic at the point

at which enrolments reach a figure of 30 per cent of the relevant age cohort. This may be called the critical point at which students belonging to the lower-income households start receiving the benefits of education. Assuming in a purely arbitrary manner that an enrolment of 20 per cent of the total population is the critical point for countries in the region, some of the countries viz. USSR, Australia, China, Japan, New Zealand, Korean People's Republic, Viet Nam and Philippines can claim to have broadbased systems of higher education. For others, equalization is still a far cry in spite of the explosion of numbers.[4]

Equality of opportunity is also facilitated by a proper mapping of educational institutions. This has received attention and accordingly, new types of institutions known as regional universities, junior colleges or regional colleges have come up in some countries of the region viz. Indonesia, Malaysia, Thailand, Korea Republic, Viet Nam and Philippines. These are located in provinces and regions away from the metropolitan centres where higher education establishments were initially concentrated. Besides providing access to students from different regions, these institutions also try to develop courses and programmes suited to the needs of the region. As pointed out in the session on the nature and functions of the regional university at the workshop held at Penang by the Regional Institute of Higher Education and Development, Singapore: 'Although regional universities vary in nature from place to place, they share certain common characteristics. All were created to increase access to opportunities for higher education, provide skills and services needed for national development, and preserve and enrich cultural heritage. Motivations for their creation have differed substantially from country to country, and have been largely political in character. They have left their imprints on the styles of university performance. However, motivations have differed, regional universities have all been viewed as instruments for strengthening national integration through provision of educational, developmental and cultural opportunities to those previously without access to them. They have all begun to fulfil these purposes by assuming responsibility, in one way or another, for the welfare of localities and regions in which they are situated (Hoong 1973).

Burma has broken new ground in the decentralization of higher education by establishing 20 regional colleges in 1976-1977. The regional colleges offer a one year general arts and science course, followed by technological training during the second year. All students must pass this course if they wish to continue in the third year of traditional university programmes. Alternatively, the regional colleges also offer a third year, on-the-job training programme, for those who wish to begin work immediately in a technical specialization. (Spaulding and Kargodorian, 1981). In Viet Nam (Hoong 1973), the main function of the junior colleges is to provide education to the community by helping it to tap the local resources with the help of science and technology. The colleges train the technicains, agriculturists, etc., who can supplement the professionals in upgrading agriculture, commerce, health services, and so on. They also help retrain the returning veterans who may not wish to take the longer professional path in order to become contributing members of their communities. In Japan, junior colleges provide 2- to 3-year courses at the post-secondary level. These do not lead to a first degree but credits at the junior level may be counted as part of the credits leading to a degree. Australia has experimented with colleges of advanced education established in 1965. Their basic purpose is to widen the range of opportunities outside the universities with emphasis on practical application. Courses are introduced on the basis of non-industrial and social needs (World Guide 1982). In Korea Republic, a series of seminars were held to provide basic information regarding regional specialities. The problem was approached through intensive development of existing institutions and departments which support regional needs.

(Educational Innovation 1974). In USSR, where there was no institution of higher education in what is now Uzbekistan, Kazakhastan, Azerbaijan, Lithuania, Moldavia, Kirghizia, Tajikistan, Armenia and Turkmenia prior to the first world war, these autonomous republics now have a network of institutions of higher education. There are local universities also which provide instruction in two or three languages, including the language of the republic. Similarly, in India each and every state has a university or college of higher education and many of these offer instruction through the medium of the regional language.

Another important step in widening access to universities and other institutions of higher education is to see that financial constraints from which students coming from poor families suffer, are minimized. This is done through free tuition, scholarships and fellowships, subsidized textbooks, etc. In USSR, higher education is totally free. In China, India and many other countries of the region, fees are low and concessions are provided to poor and needy students. Special mention may be made of the 'study now pay later plan' introduced by Philippines under the Educational Assistance Act of 1976. The aim of the plan is to make higher education accessible to the poor but deserving high school graduates. Educational loans are given according to need and merit from out of the funds provided by the participating government financing institutions. A list of priority courses to be offered by the awardees is also drawn up. The loan has to be repaid with interest after employment; repayment is amortized within a maximum period of 10 years for graduates of degree courses and five years for graduates of non-degree courses (Country Statement).

Besides the general measures for equalizing educational opportunity outlined above, some countries have gone in for reservations or the quota system for socially disadvantaged groups, ethnic minorities or those belonging to educationally backward regions. In India, guidelines have been issued by the Ministry of Education regarding reservation of seats for Scheduled Caste/Scheduled Tribe students in all universities and colleges. According to the present arrangement, 20 per cent of the seats are reserved for such candidates and they are also given a concession of 5 per cent marks in the minimum percentage of marks required for admission to any course. In case the seats in the reserved quota remain unfilled, a further relaxation in marks has to be provided in order of merit. Other measures taken in this regard include reservation of seats in hostels, assistance to colleges in backward or tribal areas and reservations in the award of fellowships, scholarships, national associateships and teaching posts in universities or colleges.

In Sri Lanka (Banda 1982), the admission policy which has been formulated jointly by the Government and the University Grants Commission, is based on the following considerations:

(a) admission will be done on the basis of raw aggregate marks (meaning thereby that no standardized marks will be used for this purpose);

(b) thirty per cent of the available places in each course of study will be filled in the order of merit determined on an all-island basis;

(c) fifty per cent of the available places in each course of study will be allocated to the 24 administrative districts (constituting the island) in proportion to the ratio that the population of each district bears to the total population of the country, and will be filled in the order of merit determined within each district;

(d) the remaining 15 per cent of the available places in each course of study will be allocated to the 13 administrative districts, which have been identified as being educationally underprivileged, also in

proportion to the ratio that the population of each district (in this group of 13) bears to the total population of the 13 districts, and will be filled in the order of merit determined within each such district;

(e) No student will be admitted to any course of study unless he has attained the minimum requirements for admission.

In Thailand, the regional universities have introduced a quota system; the Khonkhaen University offers 25 per cent seats to the top 25 per cent in the school leaving examination (SLE) from the Northeast, Chiangmai University has a quota of 30 per cent and the Songhkla University 40 per cent. Mahidol and Chulalongkorn Universities in Bangkok have initiated a medical-student recruitment programme to draw provincial students to study medicine, provided that they will return to work in the province (Spaulding and Kargodorian 1981).

In China, a number of institutes for minority nationality have been set up throughout the length and breadth of the country and there are special classes for minority students in seven major universities. Courses are given in the minorities' own spoken and written languages if the enrolment is mainly composed of students from the minorities.

USSR has gone in for workers faculties or what are now known as 'preparatory departments'. A majority of the 891 institutes and universities in the country offer short-term diploma courses to help the young workers, collective farmers and others to qualify for admission to higher schools. Says Vyacheslev Yelyutin: 'For one thing, this means further democratization of the student population and secondly, it helps to eliminate the still existing differences in training standards between urban and rural young people, between school leavers in large cultural centres and in small provincial towns. In short, everything is being done to furnish equal 'starting' possibilities for the rising generation. Members of ethnic minorities, I may add, are admitted to universities and colleges without contest (Valeria 1982).

A close parallel of the workers' faculties is the provision of remedial courses provided by a number of Indian universities. Remedial courses are meant for students coming from the weaker sections of the society, poor peasants and working classes from rural and city areas. Such students receive special assistance and are provided necessary guidance and training to overcome deficiency in language, science and mathematics. Students are divided into two groups: those needing intensive help and those needing marginal help. Remedial teaching is organized during the long summer vacation or term time, and is proving quite effective in enabling students belonging to weaker groups to come to the level necessary for pursuing higher studies effectively.

It has been increasingly felt by countries in the region that the goal of equalizing opportunity is beset with so many difficulties that marginal changes in the formal system alone would not make such impact. Consequently, they have gone in for alternative delivery systems like distance learning through the institution of correspondence courses and establishment of open universities. These measures have been surveyed in Chapter III and are particularly important for the weaker sections since they enable such students to pursue higher-level courses at a place and time of their choosing without having to forgo earnings.

One must recognize the fact that education is only a subsystem in the total system of social structures, stratification, family, kinship, economic policies and political philosophies. Education can become an agent of change only if it gears itself fully to meet the urges of the people and their educational needs.

What is called for is a multipronged approach for inducing and sustaining change and a combination of measures such as flexible and relevant courses and curricula, establishment of new types of institutions to cater for the needs of in-service people, introduction of compensatory courses for the weaker sections, financial incentives, reservations and quotas, provision of distance learning and other modes of non-formal education.

Reform and renewal

The educational triune comprises two 'living components'--students and teachers--and the 'non-living curricular contents'. The vitality of the system lies in relating the non-living with the living and making it capable of responding to changes in environment and the exponential growth of knowledge, which is a characteristic of our age and time. It is said that in certain areas such as science and technology, changes are so breathtaking that by the time a publication comes out, it has possibly become outdated. As so aptly put by D. S. Kothari, a former Chairman of the University Grants Commission in India: 'The total achievement to date in science and technology is indeed remarkable but even more striking is the rate of pace of progress. A number of different indices indicate, as brought out clearly in the pioneering study of Derek de S. Price, that over the last 200 years or so, scientific knowledge and things directly related to science have been growing at an average rate of 5-7 per cent a year. This corresponds to a doubling time of 10-15 years. As an illustration, take the case of science journals, a key innovation of the scientific revolution. Beginning with a handful of journals about 1750 A.D., the number rose to about 1,000 in 1850 A.D. and is now nearing 100,000. Probably, it would reach a million by the end of the century'. The temper of science has also permeated social sciences, philosophy, literature and other fields, which have all been a witness to revolutionary changes in regard to contents, views and values. Considering the explosion of knowledge in recent times, the greatest danger to the pursuit of excellence by universities in the future will arise from obsolescence. It is, therefore, essential that courses are updated and kept abreast of developments in different disciplines. This is the principle of modernization.

It is also necessary that the curriculum be organized around the principle of flexibility. There would be many advantages if courses are offered as unit courses, care being taken to ensure that only those units are offered for which there is a sufficient demand. This implies that while a student may be required to do the core-compulsory part of the course, he will also have a wide basket to choose from. The difficulty is that many universities and colleges in the region, specially those in the less developed countries, do not have the wherewithal to enable them to schedule their teaching programmes in such a way that the student will have the necessary degree of autonomy in selecting a proper mix of courses. The difficulty can be obviated, to some extent, by moving away from the loaded curriculum and overemphasis on lecturing as a method of instruction both of which are a hang-over from the past and which most universities in Asia are carrying like a millstone round their neck.

It is also important that in the development of the curriculum, universities in the Asia and Pacific region do not become dependent on Western models or on textbooks which have no relationship with conditions in their own country. As remarked by the Secretary and the Director-General of Education in Sri Lanka, 'We are guided by their theories, their knowledge and the problems of implementation discussed in such texts. These textbooks certainly are useful guides in our overall thinking but their details may not be so valuable in formulating our own devices for curriculum development... We have to evolve our own strategies and ways and means of curricular reforms and implementation... Besides this total dependence on knowledge which emerged from outside, we also tend to feel superior to the

so-called uneducated masses of our countries. Hence, the depth of knowledge and the wisdom of our people have not really entered the knowledge base of our curricula. If education is to cope with its environment, people who have lived in that environment for centuries cannot be ignored' (APEID, 1976).

It would be advisable for universities in the region to have a cross-validation exercise between the contents of courses on the one hand and skills and abilities in the context of their specific situation, on the other. Such an exercise would immediately bring home the point that keeping in view the need for sustainable development, courses must be relevant to the environment and knowledge must have practical uses. In the context of the prevailing situation obtaining in most countries of the region, the courses should sensitize the student to the problems of the society and to conditions of disease, poverty and deprivation around him. They should also expose him to application areas so that he can investigate the society he lives in. The simple truth is that there is no laboratory better equipped than the social reality and nothing kindles the learning spirit more than practical experience.

Practical experience, it needs to be underlined, is experience for the student and is quite different from on-the-job training of a worker. The link between education and work is a two-way link in which education aids productivity, but more importantly, participation by students in the actual process of production constitutes an experience that immediately enriches the process of education. Education cannot create jobs; it should not, therefore, narrow down the scope of experience offered to a student. On the other hand, within the limits of curriculum and taking advantage of the facilities offered by research institutions, industries and other agencies in the neighbourhood, the students should be exposed to meaningful work experience and guided towards the 'optimization of processes and development of products on a laboratory scale'. Practical experience through workshop facilities would also help in developing the student's scientific and technological potential. Similarly, students in the humanities and social sciences should take up field work, project work or surveys and have placement with industries, co-operative societies, banking and other financial institutions for short or long periods as part of the core-curriculum.

Work experience in a few countries of the region has taken the form of students adopting a village or a cluster of villages and taking up programmes of integrated rural development (e.g. in India, Nepal, Indonesia). The contents of such programmes have, of necessity, to be closely related to the environment and the needs and interests of the local community and the group of learners. For example, if the target group is the village farmer, the contents could include modules in seed technology, use of fertilizers, pesticides, rotation of crops, methods of harvesting, storage and marketing as well as child-care, nutrition, health-care and functional literacy. This would necessarily involve collaboration by students from different faculties and a host of agencies operating in the field and thus bring about a change in those attitudinal postures, which often act as impeccable roadblocks in team work, collaborative projects and interdisciplinarity.

Knowledge which, in its higher reaches, has always been viewed as essential unity and synthesis of ideas and experiences must cut across disciplines, if it has to be a source of vitality and generation of new ideas. In the context of the need to enrich the existing disciplines and to widen their scope for a solution of the emerging social problems, different subjects can no longer be treated as watertight compartments or intellectual enclaves. In fact, there are a number of subjects that cannot be studied or grasped fully except on an interdisciplinary basis e.g. population education, environmental education, problems of war and peace, industrial relations, poverty and rural development. Also, there are new emerging areas which

lie on the borderline such as economics of education, space research and political sociology. Social problems are essentially interdisciplinary in nature and their solution cannot be anything but interdisciplinarity. While these developments have brought interdisciplinary studies into sharp focus, there have also been certain misgivings about the concept that need to be clarified. First, the underlying objective of interdisciplinarity cannot be fulfilled by a formal course like that of 'general education' or by asking students in the humanities and social sciences to do one or two courses in science and vice versa. Interdisciplinary studies can best be developed by orienting teachers, and students so that they are able to correlate teaching in their subjects with ideas and experiments in the related disciplines. Second, it should be understood clearly that there is no real conflict between the modern trend towards specialization and in-depth studies on the one hand and interdisciplinary studies on the other, provided the term 'interdisciplinary' is interpreted in its wider sense as being a matter of approach rather than content.

Universities in different countries of the region have, in recent years, taken several measures to promote interdisciplinary studies and researches such as the introduction of new areas, subjects or papers of an interdisciplinary nature, formulation of collaborative research projects and setting up of centres which draw on various disciplines like the area studies centres in India, Pakistan and Nepal. However, the major thrust has come through new structures of departmental organization. A number of newly established universities (for example, in Iran, Malaysia and Japan) are breaking away from the traditional system by organizing their departments or faculties on an interdisciplinary basis with focus on major problems. In India, two universities viz. Jawaharlal Nehru University, New Delhi and North-Eastern Hill University, Shillong[5] have introduced the system of schools to replace the erstwhile department as the basic unit of teaching and research. By all accounts, these schools are functioning well in the realization of their objective of 'interdisciplinary studies' and researches.

In USSR, a new type of research organization has come into being which aims at bringing together scientists and specialists in different fields and from different institutions and different enterprises so that they can tackle interdisciplinary research programmes of a complex nature. This new structure functions parallel to, and in close relationship with, the traditional university system (Formules 1981).

The above examples provide a breath of fresh air in what is otherwise the miasma of curricular contents. The general impression that one gathers is that of lack of responsiveness to changes in syllabi. For example, a committee appointed by the University Grants Commission in India to review its ongoing programmes found that while a few universities had taken steps towards the introduction of new areas of specialization, applied projects and short-term diploma courses, there has been 'tardiness in giving effect to the various recommendations' of the reports of regional workshops, subject panels and expert committees in regard to changes in curriculum (UGC 1981). In the Korean Republic, students have been demanding relevant education and a shift-away from the narrow and compartmentalized courses and the reorganization of the curriculum to ensure greater adaptability to the needs of the society. Similarly, Bangladesh has identified 'outdated curricula, examinations, textbooks and teaching methods' as one of the major weaknesses of its university system.

It is not easy to realize in the above context the overall objectives of updating courses, flexibility, application, relevance and interdisciplinarity. The process of curriculum renewal can be facilitated by streamlining the existing cumbersome and laborious procedures in universities of the region. Very often, proposals for change have to pass through several tiers of academic decision-making.

This becomes a self-defeating process. The academic structure should be flexible enough so that changes can be effected after debates and discussions have taken place in the academic councils, faculties and boards. There should be an in-built mechanism to undertake review of courses from time to time, such as a council or committee at the level of each university which should be interdisciplinary in its composition. There could also be a national-level 'consortia' of faculties in different areas as in Indonesia to oversee that university curriculum can be modified so as to serve priority areas of national importance and the specific objectives of courses at different levels.

More important than the curriculum is the mode of communication and presentation by the teacher and the competence of the teacher himself. The essential vitality of the curriculum depends so much on the crucial role of the teacher that even a good curriculum becomes ineffective in the hands of an indifferent teacher. There can be nothing more discouraging than the presentation of an imaginative curriculum as a 'frigidaire of facts' or a storehouse of routine information. In the ultimate analysis, the teacher is the key to any reform. Therefore, the importance of a far greater emphasis on the qualifications of teachers, norms of professional ethics, their training and orientation and on raising their morale. Mere cosmetic commitment will not do, there should be esprit de corps.

The role of the teacher has become particularly important in the context of the new philosophy of education. Today, the teacher is called upon to perform not only the traditional functions of contributing to scholarship and advancement of the frontiers of knowledge but also to play a role in the transformation of the educational system for the realization of the goals of relevant and functional education. He should also have commitment to a society based on justice and equality and should, therefore, strive for the inculcation of these values and extension of knowledge and skills to the society at large.

There is a growing awareness among planners of higher education in the region that the formal systems of education often wrapped up in their 'neutrality and intransigence' and the 'sieving' process of selection are hardly in a position to meet the educational needs of the society and more specially of learners belonging to the weaker sections and those living in backward regions. They have consequently chartered a new path--that of non-formal education.

The report of Group A at the fifth consultation meeting of the Asian Programme of Educational Innovation for Development in 1978 on non-formal and alternative structures of education underlined two distinct major motivations for the emergence of non-formal education. It states: 'on the one hand, it (non-formal education) offers a means of providing some kind of education to those having no access to the formal system, or where the paucity of resources makes formal education for the whole community an impossibility. On the other hand, non-formal education is regarded as a means towards lifelong education'. Recognizing also the inadequacy of formal education systems to prepare people for continuing self-learning, the Group was of the view that 'The unifying principle of lifelong learning should be enough justification for the extension of non-formal education. Such a positive standpoint also provides some safeguard against the danger of non-formal education being considered as a poor substitute for formal education'.

The concept of non-formal education encompasses different modes of education such as correspondence courses, open university systems, adult education and extension programmes. Five broad elements would seem to run through the concept, namely (i) learning is a lifelong activity instead of being a terminal point; (ii) acquisition of knowledge is an individual as well as social interest; (iii) adult

TABLE

Selected Indicators

Name of the country	Population (millions) Mid-1980	Average annual growth of population (per cent) 1980-2000	Projected population (millions) 2000	Urban population as percentage of total population 1980	Life expectancy at birth (years) 1980	GNP per capita dollars 1980	GNP per capita average annual growth (per cent) 1960-1980	Average index of good production per capita (1969-71=100 1978-1980	Percentage of labour force in: agriculture 1980	Population per: nursing person 1977	Number enrolled in higher education as percentage of population aged 20-24 1978	Adult literacy (per cent) 1977
1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.
1. Democratic Kampuchea	6.9	1.9	10	-	-	-	-	41	-	-	-	-
2. Lao People's Democratic Republic	3.4	2.0	5	14	43	-	-	100	75	3,040	-	41
3. Bangladesh	88.5	2.3	141	11	46	130	(.)	94	74	40,490	2	26
4. Nepal	14.6	2.1	22	5	44	140	0.2	88	93	13,510	3	19
5. Burma	34.8	2.2	54	27	54	170	1.2	99	67	4,400	4	70
6. Afghanistan	15.9	2.0	24	15	37	-	-	95	79	25,920	1	12
7. Viet Nam	54.2	2.4	88	19	63	-	-	107	71	2,470	3	87
8. India	673.2	1.9	994	22	52	240	1.4	101	69	5,700	8	36
9. Sri Lanka	14.7	1.8	21	27	66	270	2.4	121	54	2,040	1	85
10. China	976.7	1.2	1,245	13	64	290	-	116	71	480	1	66
11. Pakistan	82.2	2.5	134	28	50	300	2.8	101	57	10,030	2	24
12. Indonesia	146.6	2.0	216	20	53	430	4.0	110	58	8,870	3	62

1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.
13. Thailand	47.0	1.9	68	14	63	670	4.7	128	76	1,170	7	84
14. Philippines	49.0	2.3	77	36	64	690	2.8	114	46	3,170	27	75
15. Papua New Guinea	3.0	2.0	5	18	51	780	2.8	106	82	1,590	-	32
16. Mongolia	1.7	2.4	3	51	64	-	-	97	55	250	-	-
17. Democratic People's Republic of Korea	18.3	2.2	28	60	65	1,310	-	133	49	-	-	-
18. Turkey	44.9	2.0	67	47	62	1,470	3.6	111	54	920	8	60
19. Republic of Korea	38.2	1.6	52	55	65	1,520	7.0	130	34	490	12	93
20. Malaysia	13.9	2.0	21	29	64	1,620	4.3	116	50	870	3	-
21. Iran	38.8	2.3	61	50	59	-	-	112	39	1,900	5	50
22. Singapore	2.4	1.3	3	100	72	4,430	7.5	147	2	600	9	-
23. New Zealand	3.3	0.9	4	85	73	7,090	1.8	105	9	170	29	99
24. Australia	14.5	0.8	17	89	74	9,820	2.7	123	6	120	26	100
25. Japan	116.8	0.6	130	78	76	9,890	7.1	93	12	290	29	99
26. Union of Soviet Socialist Republics	265.5	0.8	312	62	71	4,550	4.0	108	14	190	21	100

Source: World Development Report, 1982

education is a vital means through which the 'yawning gap' between the educated and the uneducated can be narrowed down; (iv) the university with its reservoir of knowledge and community of scholars is an appropriate agency to do this and (v) the involvement of the university in the service of the community is useful not only to the community but to the university itself as this is one way through which teaching and research in the universities can be made more relevant.

Non-formal education does not present itself in the form of a single model or blueprint. It is, therefore, necessary for different countries to adopt models suited to their own needs and conditions. It is also important that such programmes do not develop in isolation from the mainstream of formal courses. There should be an integration of the formal and the non-formal; and students in either of the two streams should have the freedom to move from one to the other. There could be stages as from secondary to post-secondary education but no artificial barriers to be crossed. Any student who has attained the skills and abilities specified for a particular stage of education should have access to the next stage irrespective of the fact whether he comes from the formal or the non-formal mode of education.

This does not mean that non-formal courses should invariably receive formal recognition in the sense of accreditation and certification. What is implied is that non-formal modes of education such as distance learning should not be considered as an inferior type of education. It is surprising that the student enrolled in correspondence courses, who passes through the same mill as the regular student and is better motivated is often regarded as a poor cousin of the latter. For example, the graduates of the Korea Junior College (Korean Republic) of the Air and Correspondence are not highly evaluated as compared with those from traditional institutions. The schools/institutes of correspondence courses also find it difficult to recruit teachers of the highest calibre (e.g. in India). While there is need for institutes themselves to be competitive, flexible and innovative and to do all that they can to attract and retain talent, not much can be achieved without institutional arrangements for faculty development and training in methodology. As recommended by the Technical Working Group on Distance Learning for Teacher Education, there is a need to 'encourage a teaching institution--experienced in distance learning and in staff training of distance educators--to develop the resources and manpower required to adapt and offer regionwide its training programmes, whether by attendance or at a distance or by a combination of both'. (Unesco, 1982).

It would also be desirable to link certain forms of non-formal education such as adult education and extension with the curriculum as otherwise it may tend to be a fragmented kind of activity with little impact on development processes of a community and the realization of social objectives. This requires (a) maintaining continuity of service to the community on the basis of specific social targets with a provision for monitoring/reporting and appraising field results, (b) encouraging students to produce methodically a report on the project work done by them which could very well be a prerequisite for earning their degree, (c) considering whether field-based dissertation can be introduced and (d) giving credit for the extension work done by the student or the teacher.

In fine, non-formal education should be integrated both with the formal mode of education and the curriculum. Higher education needs to allow the learner to take one of the many different paths with the freedom to move horizontally as well as vertically. The motto should be that extension of knowledge to the community is useful not only to the community but a source of enrichment to the university itself, as without mutual interaction, neither teaching nor research can become relevant and functional.

Optimization

The principles of choice, competition and efficiency are as relevant to a system of education as to any other productive enterprise but the measurement of efficiency in education is much more difficult. The problem of optimizing human resource development becomes complex because education is essentially a human endeavour and there is an inevitable time-lag of ten, fifteen or twenty years between the inputs and outputs of the system. It nevertheless needs consideration looking to the fact that the demand for increasing educational opportunities is vast and varied while the resources available for the purpose are scarce. Optimization is, therefore, an important feature of the logistics of education irrespective of the stage of development reached in a country.

What is going to be the scenario of higher education in the Asia and Pacific region in the year 2000? The table below gives the selected indicators for the supply of and demand for education in the region.

The broad picture that emerges from the parameters below is one that underlines the need for the maximum utilization of resources and raising the cost-effectiveness of the current educational programmes. First, for at least some years to come, the demographic factors would continue to exert pressure on universities and other institutions of higher education and their intake capacity. Asia alone may account for more than two-thirds of the world population by the year 2000. Within Asia; China, India and Indonesia together are expected to have the same population as the existing population size of the whole of Asia. Second, in a number of countries (viz. Bangladesh, Burma, India, Sri Lanka, China, Pakistan, Indonesia, Nepal, Thailand and Philippines) the per capita income may be less than 700 US dollars and may continue to be so in several of these countries. Third, students will continue to demand university education in large numbers and possibly, a majority of them will be from the poor strata of society. Also in view of the large percentage of the labour force in agriculture and the predominantly rural economies of these countries, the proportion of students coming from rural areas may become significantly high. Also, because of the abysmally low level of literacy obtaining in countries of the region, a good proportion of the future university population in Asia may belong to what may be called the 'first generation of learners'. Fourth, the unit cost of higher education which is at least 10-30 times more than the unit cost of primary education is likely to go up in respect of different courses of study. In years to come, there may be a greater demand for scientific and technological courses, which are relatively more expensive. The professional level staff, who have an international market, may have to be retained at competitive levels of salary to prevent brain-drain. The use of computers, sophisticated and costly equipment and audio-visual aids will also become indispensable and expensive. Also with the growth of knowledge, further research generally becomes increasingly complex and costly. All these factors will lead to escalation of costs. Fifth, most countries in the region may not be in a position to plough in sufficient resources for the development of higher education as food, health and shelter will still continue to be their priority needs. Last and the most disturbing aspect is that the spectre of unemployment may continue to haunt a number of countries in the region. It is against this backdrop that the education profile of countries in the region in the year 2000 will have to be evaluated.

An important criterion of efficiency in education and one that lies at the heart of the optimization process is that of the flow of students from one stage to the other or the input/output ratio. The available evidence from many universities in the region shows that even at this seminal point of education dropping out, repetition and failures are astounding. A study of examination results in

India for the year 1973-1974 indicates that the failure rate at the B.A., B.Sc. and B.Com. levels is generally of the order of 50 per cent, and that at the post-graduate stage and in professional courses it ranges between 20 and 30 per cent. The comprehensive data collected by a team of investigators in respect of a prestigious college of the University of Delhi for the period 1973 to 1976 reveals the following distressing facts (Singh 1982):

(i) Although fifty-four per cent of the students admitted to the college as a whole had more than 60 per cent marks in their higher secondary examination, only 22 per cent out of them could maintain this record of performance. The rest of them deteriorated. Similarly, only 7 per cent out of 19 per cent in the range between 55 per cent and 60 per cent could maintain their record of performance; the rest tended to under-perform.

(ii) The performance of students in the various honours courses was distinctly better. Out of the 65 per cent students admitted in various honours courses in the faculty of science with more than 60 per cent marks in the higher secondary examination 38 per cent could maintain their original level of performance.

(iii) However, in the faculty of social sciences, the rate of wastage in repect of honours students was higher: 46 per cent of them had more than 60 per cent score at the higher secondary level. But when they passed out only one per cent could maintain the level of performance.

(iv) Seventy-five per cent of those admitted to the B.Com. (Hons.) course had 60 per cent and higher marks in their higher secondary examination. When they graduated, only 5 per cent of them had maintained that level of performance. Only 61 per cent of those who had got admission to the course completed it successfully. Others dropped out or simply failed.

(v) The most shocking rate of wastage is to be encountered in the B.A. (Pass) course. Only 11 per cent of those who got admission completed the course. The remaining 89 per cent either dropped out or joined some other course or did something equally unsatisfactory.

The main culprit in the kind of situation described above leading to large-scale wastage and stagnation would seem to be the examination system, although this does not constitute the only explanation. From all accounts, examinations in many universities in the region have become so obstrusive that instead of helping the 'education of the worthy', they have become a process for the 'elimination of the unworthy'. Today, students select their courses and optional subjects with one eye on examination performance and the other on employment potentiality. Teachers pursue those techniques of teaching that fit into the mould of examination. Examinations have such a pervasive influence that instead of the curriculum governing the examination, it is examination that dictates the curriculum.

Examinations are also expected to perform a miracle. Taking the secondary examination as a case, the examination is expected to serve as a terminal point and to certify the achievements of the student as being suitable for middle-level jobs. The same test also certifies the eligibility of a candidate for admission to the first degree course in arts, science and commerce. The question is whether a single test can perform such a variety of functions?

The dominance of examinations is so great that a certificate, degree or diploma based on examination performance has become a passport for a variety of jobs. Employing agencies in the private and public sectors use examination grades for

purposes for which they were never intended and consequently education is geared towards ends which are not its true ends. The consequence of this education-occupation mesalliance is that industry is supplied with manpower ill-suited for the jobs in question and deprived of graduates and school leavers who might have been better practitioners than those with a purely theoretical orientation.

Not only that examinations have acquired a stranglehold over education but research undertaken by a number of universities during the past many years has demonstrated beyond doubt that traditional examinations with their emphasis on rote memory and regurgitation of knowledge lack validity, reliability and objectivity. Students in many universities in the region try to hoodwink the examiners and invigilators alike by all means known to human ingenuity. The world of examinnees is divided between the 'cue-deaf' and the 'cue-seekers' and it is the latter who often make the grade.

It is thus clear that external end-of-course examinations do not provide the right kind of educational experience and feedback. For this purpose, assessment would have to be on the basis of continuous sessional evaluation through which, apart from the backwash effect, one can measure different kinds of abilities such as writing of essays, project reports, home assignments, seminar discussions, field work, laboratory practicals, etc. The student should, in fact, be given a complete profile of his performance instead of just a mark or grade. The 'dead mouse' principle of marking under which part failure becomes tantamount to total failure will have to go.

An important aspect of the process of optimization is the qualitative improvement of the teaching-learning processes by developing methods which will help assimilation of knowledge and skills by the students at the optimum level and in the shortest time possible.

In this context, it is necessary to recognize the importance of problem-solving exercises and seminar discussions in the case of science subjects and case studies, tutorial and seminars in the case of social sciences. Individual and group assignments should be given, evaluated and discussed frequently as an aid to better learning. The teaching methods employed by the teacher should be such that instead of placing reliance on formal lecturing, teaching and learning become a participatory experience. The student should be encouraged to do self-study and to browse in the library and to do laboratory practicals. He has to be provoked to have an unslaked curiosity and to think independently and critically.

There is also a need for developing audio-visual aids such as films, filmstrips, slides, tapes, radio/television broadcasts, computers, etc. These are already being used in a number of countries in the region (e.g. USSR, Japan, Australia and the Korean Republic) but in most of the developing countries their use is, by and large, confined to blackboards, maps, graphic materials, pictorials, etc. It is necessary to clarify the point that the use of audio-visual aids does not constitute mechanization of teaching nor are these a substitute for the teacher. These materials are aids to teaching, valuable because they can bring to the classroom the entire world outside in a form which because of its vividity and reality leaves a more lasting impression on the mind of the learner. The best talent goes in designing the material and the student is thus exposed to the latest advances in his field of study. A part of the material can be used over and over again until the student fully grasps the significance of the concept being conveyed through the audio-visual medium. An added advantage in the case of projected materials is that it is possible for the visual image to be seen by large audiences.

While the value and importance of audio-visual aids in the context of changing patterns of communication cannot be overstressed, it is also a fact that many of these aids are costly such as the cctv or the emerging two-way videotext service; and beyond the reach of several countries in the region. What is, therefore, called for is an awareness and appreciation of the various teaching aids, dissemination of information, research, training and the use of such aids or combination of media formats as may be appropriate and cost-effective in the context of individual universities in the region.

Education is a labour-intensive industry and, therefore, the proper utilization of faculty time is a major factor in determining its overall efficiency. From this point of view, each university must have a close look at its staffing patterns and take necessary measures regarding a proper mix of (1) full-time and floating staff, (ii) teaching and research and (iii) lectures, tutorials, seminars and practicals. Many universities will find that a small variation in the teacher-pupil ratio will bring about substantial economies without impairing efficiency. Similarly, it should be understood by universities in developing countries that there is nothing sacrosanct about a particular class-size. In fact, past experience has shown that learning outcomes are not affected adversely by large lecture classes, provided these are supplemented by small tutorial groups for individual attention and removal of difficulties. There is also a need to encourage the shift system in such universities as may be faced with the problem of explosion in numbers. Attention will also have to be paid to the problem of growing polarization[6] and other dysfunctionalities that have become endemic in many universities of the region. The issues are complex but it should be recognized that an institution deals with living components and, therefore, there would be advantages in having a machinery for the redressal of student grievances, greater participation in academic decision-making, reorganization of courses to make them relevant and functional, openness in administration, streamlining of procedures and decentralization of the organizational set-up.

Serious note should also be taken of the fact that in many institutions, infrastructural facilities such as classrooms, libraries, laboratories and hostels are also not being used judiciously and to their full capacity. What is worse is that in spite of financial stringency, there is unnecessary duplication in the acquisition of costly journals and sophisticated equipment by departments within the same university and lack of collaboration and interaction among institutions in the same town and among highly specialized departments in the same region. This, in a large measure, is due to lack of planning on the one hand and the cult of possessiveness, on the other. In this context, one cannot but underline the need for integrated approach, pooling of resources, centralized facilities, regional centres, inter-library co-operation and co-ordinated development.

It is also a fact that the existing links between universities and institutions outside the university system in different countries of the region are highly tenuous. There are notable exceptions e.g. USSR and Japan but elsewhere the situation calls for better linkages amongst the universities, national laboratories, research organizations, industries and developmental agencies. There should be an exchange of personnel among these organizations for mutual interaction and sharing of experiences, besides consultancy services by university faculty and placement of graduate students in industries and other field agencies. It has also to be recognized by industries and their managements that they are not in a position to set up their own laboratories or to have specialists in different areas working on projects and problems. Under the circumstances, they have got to lean heavily on university research. Further if the time-lag between the generation of a new idea and its application is to be reduced, industries will have to collaborate with the universities concerned through inbuilt mechanisms of a permanent nature rather than purely ad hoc measures. What is true of industry will, mutatis mutandis, apply to the other sectors of national development as well.

Planning in the perspective of development and the availability of resources is an essential part of the process of optimization. While most countries in the region prepare co-ordinated plans for educational development from time to time, it seems that such planning is generally done on a short-term basis. The possible exceptions are Malaysia and Australia. Malaysia has prepared a plan for 1971-1990. Similarly in Australia, the William's Committee Report has made recommendations for universities and colleges of advanced education for the provision of facilities and services projected to the year 2000. Looking to the basic nature of human resource development as distinct from physical resource development, there is an obvious need to prepare optimization models for education on the basis of projections regarding student enrolments and staff requirements for the short as well as the long period.

Finally, a word may be said about regional co-operative programmes in higher education, which at present are generally bilateral and subregional in character. It would be desirable to widen the scope of such programmes with a view to enhancing the role of higher education in the emerging educational and development needs of countries in the region. In the ultimate analysis, there should be a convergence between institutions of higher education and the goals of development at all levels viz. local, national and international to enable education to function in its proper perspective; only then will our dream of the sunlit garden of education come true.

Notes

1. The percentage distribution of enrolment at the third level will be lower and so will be the proportion of women as compared to the world averages.

2. In a paper on Social Origins and Sex-Differential Schooling in the Philippines, the authors provide documentation on educational attainment and observe: 'We focus on two less sanguine but equally important features of Philippine education: its unequal distribution across social groups, and the dependence of years of schooling on social background. As we will show, the equity situation has improved in some respects but has remained stagnant in other ways. One very positive development is the virtual disappearance of the sex-differential in schooling that existed to the benefit of males at the turn of the century. In contrast, differentials by birthplace, father's schooling, and father's occupation have persisted. We show that the elimination of the sex bias in schooling is a socially delimited rather than a society-wide phenomenon; in the large, generally poor, and more traditional sectors of the society, wherever the educational attainment of fathers is still low, significant sex differentials in the schooling of their offspring persist.' (Smith, Peter C. and Cheung, Paul, P. L., Comparative Education Review, Vol. 25,No. 1, February 1981, pp. 28-44).

3. A study on Regional Educational Inequality and Political Instability, which included a number of countries from the Asia and Pacific region viz. Australia, Japan, Malaysia, Philippines, Turkey and USSR, inter alia, came to the conclusion that countries which gained their political independence recently have made special efforts to reduce regional educational inequality (Monchar Philip Harris. Comparative Education Review, Vol. 25, No. 1, February 1981, pp. 1-12).

4. In a study of the arts students of the M. S. University of Baroda during 1972-1973, it was found that the percentage of students belonging to the economically weaker sections of the population was as low as 25.8 per cent; it being assumed that a student belonged to the weaker sections if he came from a family with an annual income of Rs. 4,800 or less. (V. N. Kothari, et al. Access to Higher Education and Equalization of Educational Opportunities through Freeships. A case study, Journal of Higher Education, Monsoon 1982, UGC, New Delhi, p. 75).

5. Besides the establishment of interdisciplinary schools, the university at Shillong, which caters to the educational and cultural needs of a number of tribes, has also developed the idea of a multi-campus university and courses of direct relevance to the region.

6. An analysis of cases of student unrest in India shows that there were 348 incidents during the period January to December 1980. Many of these incidents were violent in nature but what is more disturbing is that more than 50 per cent were due to off-campus issues over which universities hardly have any control.

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